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TEACHER HANDBOOK

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MODULE 1: ASSESSMENT OF PERCEPTION OF INTELLIGENCE

Objective 1: By the end of the lesson, teachers will be able to identify whether they have a growth or fixed mindset.

Duration: 15 - 30 min.

Materials: Intelligence perception assessment scale (Appendix 1)

METHOD

Do:

1. Distribute the scales to the teachers and explain how to complete them.
2. Teachers are asked to evaluate their own scales (items 1, 2, 4, and 6 represent a fixed mindset, while items 3, 5, 7, and 8 represent a growth mindset). They then compare their scores to determine which mindset they possess.

Explanation:

1. Watching Khan Academy videos can teach you anything. Here are some examples: https://www.youtube.com/watch?v=JC82Il2cjqA.

   Question 1: What do you think? Can you give an example from your own life?

   Question 2: Can your students learn anything? Can you give examples from your school experience?

2. Individuals with a growth mindset believe intelligence, skills, and talents can be developed through effort, effective time management, and learning. In contrast, those with a fixed mindset think intelligence, talent, and skills are innate and cannot be changed or developed. Research indicates that people with a growth mindset are more successful in school and their lives beyond the classroom. If the score you received on the scale indicates that you are more inclined toward a fixed mindset, there is no need to panic or feel discouraged. In this process, we will discuss the growth mindset at length and explore practical ways to develop this mindset both in ourselves and our students.
3. We will teach our students how to approach learning, how to overcome challenges, how to solve problems, and what to do when they feel like giving up. Everyone can learn.

Appendix 1: Intelligence Perception Assessment Scale for Children

		Totally Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Completely Disagree
1	You have a certain level of intelligence, and you cannot do much to change that.						
2	Your intelligence is something you cannot change much about yourself.						
3	Whoever you are, you can significantly change your intelligence level.						
4	To be honest, you cannot really change your intelligence level.						
5	You can always change how smart you are to a large extent.						
6	You can learn new things, but you cannot change your basic level of intelligence.						
7	No matter how much intelligence you have, you can always change your intelligence quite a lot.						
8	You can change even your basic level of intelligence significantly.						

What is a Growth-Mindset?

Objective 2: By the end of the course, teachers will be able to define what a growth and fixed-mindset is.

Duration: 30 - 40 min.

Materials:

- Worksheet titled 'My Mindset in the Past'
- Pencil
- Piece of paper
- Internet
- Wood

METHOD

Do:

1. Distribute the worksheet titled 'My mindset in the past' to the teachers.

My Previous Mindset	
Write or draw an event/situation/task that you worked hard on and improved.	Write or draw an event/situation/task that you found very challenging and eventually gave up on.

Explanation:

1. After sufficient time has been given to the teachers, volunteer teachers are asked to share their examples. The examples draw attention to examples of development and a fixed mindset. The board is divided into two sections as T Table. The examples given by the teachers are written under the relevant heading. Particular attention is drawn to similar expressions.

T GRAPHİCS	
Growth Mindset	Fixed Mindset

2. https://www.youtube.com/watch?v=pN34FNbOKXc (The power of belief mindset and success Eduardo Briceno). After watching the video, the following questions are asked:

a. What did you think about what you did and did not do while watching the video?

b. Why do you think you were able to do what you did? Why do you think you could not do what you did not do?

c. What are your overall thoughts on the statements made? What points do you agree with, and what points do you disagree with? Please explain.

d. After collecting the answers to the first three questions, connections, parallels, or contradictions between these answers and the T-chart are identified.

e. Finally, a general summary is provided using the following statements.

A growth mindset is defined.

According to the growth mindset, intelligence is not a fixed characteristic that people possess but rather a characteristic that can be developed through learning (Dweck, 2000, pp. 2-4). In this theory, individuals primarily focus on developing their abilities and acquiring new knowledge. In other words, individuals are learning-oriented. People are willing to make the necessary effort to learn, seek out challenging conditions that promote learning, and persevere in the face of potential failure (Dupeyrat & Mariné, 2005, p. 44).

A fixed mindset is defined.

According to the fixed mindset, people believe intelligence is a fixed trait. They believe that everyone has a certain level of intelligence and that it is an unchangeable trait (Dweck, 2000, pp. 2-4). In this theory, teachers focus primarily on getting good grades to prove their abilities to themselves and others. People are performance-oriented. Performance orientation leads individuals to reduce their level of effort, give up easily when faced with a challenge, and avoid tasks that will be difficult for them (Dupeyrat & Mariné, 2005, p. 44).

Carol Dweck defines the mindset in five key areas.

Key Area	Fixed Mindset	Growth Mindset
Challenge	An intelligent person avoids difficulties to maintain their image. ***If I select an easier course, I can achieve a higher grade with less effort.***	With a desire to learn, challenges are accepted. ***Being in a degree program requires more effort, but I will gain more knowledge.***
Barriers	Giving up when facing obstacles and setbacks is a common reaction. ***I made mistakes during my football match, so I have to quit football.***	Perseverance in the face of obstacles and setbacks is a typical response. ***I made a mistake during my football match, but by working with the coach, I can improve.***
Effort	Putting in effort or trying something is often seen negatively. If you have to make an attempt, it implies that you may not be particularly clever or skilled. ***If you're intelligent, you shouldn't have to struggle. You're either intelligent or you're not.***	Hard work and effort create the path to success. ***The key to becoming smarter is to work more intelligently.***
Criticism	Negative feedback, regardless of its constructiveness, is frequently overlooked. ***When I seek assistance from my teacher, they believe I am not capable.***	Criticism provides valuable feedback that can enhance learning. ***When I get stuck, I seek help, as asking for assistance is the most effective approach. By receiving feedback, I can improve my skills.***
The Success of Others	The success of others is perceived as a threat, triggering feelings of insecurity or vulnerability in individuals. ***I avoid taking challenging classes or jobs and shying away from difficult problems because I feel the need to appear smart all the time.***	The success of others can be a source of inspiration and growth. ***I aim to surround myself with successful individuals to learn from them.***

3. After explaining the mindset theory, information is provided about its reflections in teachers.

So, how do we see the reflections of these mindsets in teachers?

Fixed Mindset	Growth Mindset
Professional development is very boring; I can't learn anything about these topics/things.	During my professional development, I will listen with an open mind and seek new ideas.
These parents are driving me crazy; everyday they want to see progress/developent.	This parent is investing in their child. I need to find a way to communicate with him/her.
This students is unable to demonstrate any progress in mathematics.	How can I present the information so that this student understand?
This student is a perfect reader, h/she doesnot need my assistance.	I need to create more enriched teaching environment so that this student feels sufficiently challanged in their reading lesson.
I will never be a a competent teacher like him/her.	I should ask him to be my mentor so that I can learn something from him.
My students ruined this lesson and the lesson itself.	How can I change my lesson to increase student participation?
These students hate school. There is nothing I can do to change that.	How can I encourage students to participate in the learning process with more enthusiasm and interest?
The home environment is so miserable that this child does not even have the dream of graduating.	I believe that this student will find a way to succeed despite all his negative experiences in the past.

4. **Question:** How do you think the classroom environment would look with these two mindsets? Get answers from the teachers. Draw a T table on the board and put the answers under two subheadings. After getting the answers, project the table below and make comparisons.

Features	Fixed Mindset	Growth Mindset
Student Performance Indicators	The classroom environment reflects the students' efforts. For example, eraser marks, underlined mistakes, etc.	The classroom environment appears flawless, free from noticeable errors.
Class Rules	Values that will develop a growth mindset in a way that will create a positive classroom environment are emphasised.	A long and comprehensive list of things that students are not allowed to do is published, specifying the criteria for failure.
Furniture Arrangement	It is designed to enable students to collaborate easily. Wheeled furniture can be a great addition to classrooms.	The desks are arranged in straight rows, making it difficult for students to work together in groups.
Classroom Walls	Slogans and posters promoting a growth mindset are displayed on the walls. For example: 'Make mistakes,' 'This challenging work will help develop my brain.'	Slogans and posters promoting a fixed mindset are displayed on the walls. For example: 'Practice makes perfect' or 'You are amazing.' These are problematic statements because practice does not always lead to perfection, and no one can be amazing at everything.
Teacher's Desk	The teacher's desk is at the front and easily accessible. The class can move around during lessons without being tied to the teacher's desk, encouraging children to ask questions.	The teacher's desk is at the back of the classroom. The teacher stands behind the students and monitors them. The teacher does not engage in approaches that increase interaction, such as physical proximity or eye contact, and does not encourage questions.
Additional Areas	Additional space is created for students to collaborate by using furniture such as sofas, armchairs and cushions, and flexible classroom areas. Alternatively, a 'quiet area' has been created where students who prefer to work alone can do so by wearing headphones. The classroom environment is designed to support the different characteristics of different students.	No additional space is provided. All students are expected to sit in the same row and work in the same way. Different characteristics of students, especially different learning approaches, are not taken into account.
Classroom Management	Discipline is personal and never undermines a child's dignity. Instead of a punitive approach, guidance is provided to promote discipline.	Writing the names of students who have not completed their assignments on the board for the whole world to see and sharing them on WhatsApp groups. Exposing the names of students who behave poorly on notice boards, etc.

5. Teachers are said to play a crucial role in fostering a growth mindset, particularly in children.

https://www.youtube.com/watch?v=nF-H07Ct7R0 (Reversed: A Memoir from "Dyslexic to Ph.D. Oxford.").

After watching the video

Question: What do you think Nicholas Letchford's teacher might have said to his mother?

Answers are accepted. The story is told. 'For Nicholas, who grew up in Australia, his teacher said in his first year of school that he had a "learning disability" and "a very low IQ." Again, during one of his mother's first meetings with teachers, the teacher said Nicholas was the worst student she had seen in 20 years. Nicholas struggled to focus, connect, read, and write.

As schools, universities, teachers, and families continue to convey messages rooted in a fixed mindset approach, students of all ages will continue to give up on pursuing education in areas that could bring them great joy and success.

6. **Let's play - Let's reinforce**

Participants are divided into groups of 4-6 people. Each group is given cards with statements about fixed and growth mindsets.

1. These statements should be placed under the headings of fixed and growth mindsets. While doing this, discuss why each statement should be under the relevant heading.
2. Statements that indicate a fixed mindset should be rephrased to reflect a growth mindset. (For example, 'I'm not good at this job' is rephrased as 'I need to practice this job more.')
3. The whole class discusses suggestions from the groups.

Fixed Mindset	Growth Mindset
Science class is not my thing.	I can develop my brain.
I'm not good at this.	I need to change my strategy.
She's the smartest girl in the class.	My hard work and effort paid off.
Grades are more important than improvement.	I'm not there yet.
It's better to look smart than to take risks.	People can change.
I'll never be clever.	It is important to have a good attitude in the learning process.
To tell you the truth, I feel like an idiot.	I'm a problem solver.

Fixed Mindset

Growth Mindset

Objective 3: At the end of the course, teachers will be able to define the brain and its parts.

Duration: 15 - 30 min.

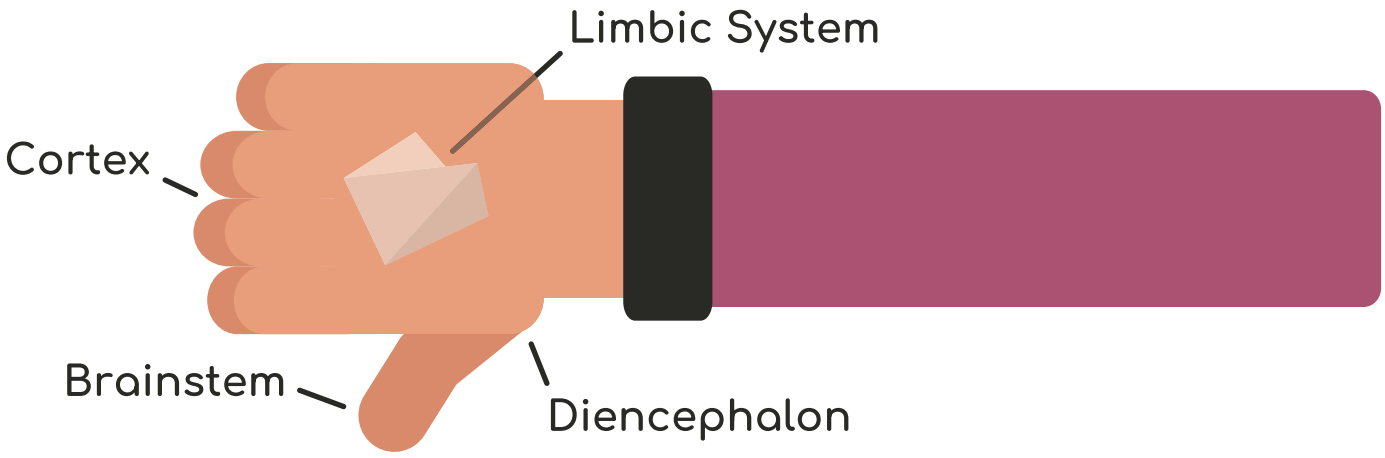
Materials:

- **Hand paint**
- **Paper**
- **Pencil**

METHOD

Build-Show: An "Our Brain in Our Hands" event will be organized.

Hold a piece of paper in your hand and fold it into your palm. Raise your thumb like a hitch-hiker. Now rotate your fist into a "thumb down" position. Your thumb represents the brain stem, and its tip is where the spinal cord joins the brain stem; the fleshy part of your thumb represents the diencephalon; the folded paper in your palm, covered by your fingers and hand, symbolizes the limbic system; your fingers covering the paper represent the cortex.



The following explanations will be added to the picture above. These explanations will appear sequentially when you click, similar to a slide. Thus, the explanations will be presented in order.

The brain is roughly divided into four parts: the brainstem, the diencephalon, the limbic system, and the cortex. The brain is organized from the inside out, with increasingly complex parts added to an old foundation. The lower and most central areas, the brainstem and diencephalon, are the simplest. They are the first to evolve and develop as a child grows. The cortex is the pinnacle of brain architecture and its most complex region.

The lower parts of the brain share an arrangement similar to that of primitive creatures like lizards, while the middle areas resemble those of mammals, such as cats and dogs. The outer regions are only shared with other primates, like monkeys and great apes. The part of the brain most unique to humans is the frontal cortex, though even this shares 96% of its organization with chimpanzees.

Let's remember our hand again!

The limbic system is completely internal to the human brain; you cannot see it from the outside, like those papers. The frontal cortex is like your little finger pointing towards the upper and frontal areas. Although these are interconnected, each of the four main areas controls a different set of functions.

The brain Stem: Mediates our main regulatory functions, such as body temperature, heart rate, respiration, and blood pressure.

Diencephalon and Limbic System: Responsible for emotional responses that guide our behavior, such as fear, hate, love, and happiness.

Cortex: Regulates the most complex and highly human functions such as speech and language, abstract thinking, planning, and deliberative decision-making.

Watch: Should we examine the brain more closely?

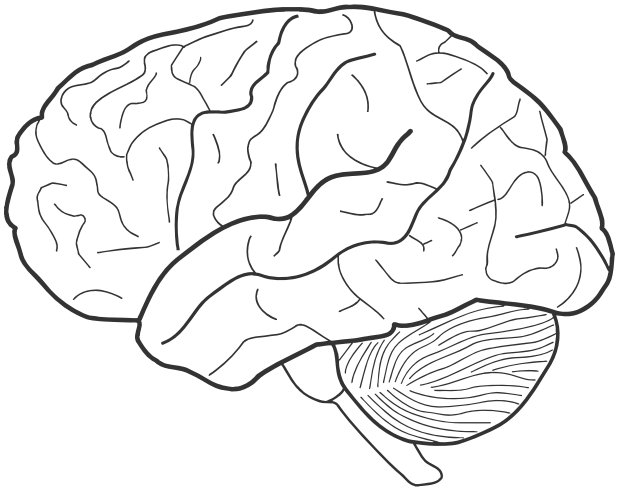
https://www.youtube.com/watch?v=ZyniF0vbzQg video (Main parts of the brain, Dr. Ali Mattu9). If this video does not open, https://www.youtube.com/watch?v=XV0nBuEFXCM (2nd link)

Play-Learn (Worksheet): After the video, reinforce what we have learned.

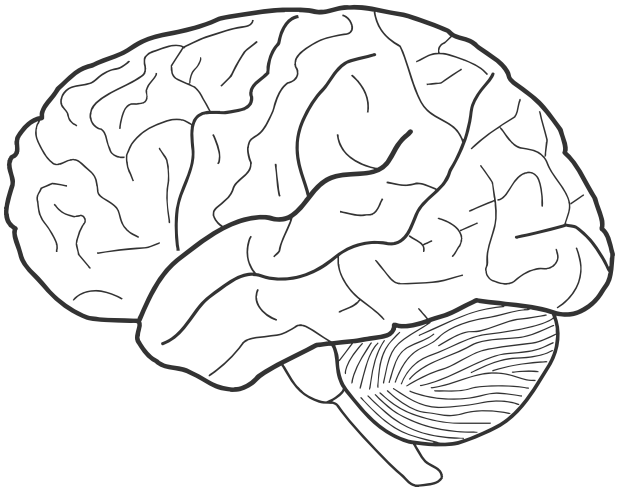
Then, they will be asked to match and draw pictures of their brain on one side and descriptions on the other. (https://www.pngwing.com/tr/free-png-ngfyu source of brain pictures)

REGIONS OF OUR BRAIN - LET'S MATCH AND FIND

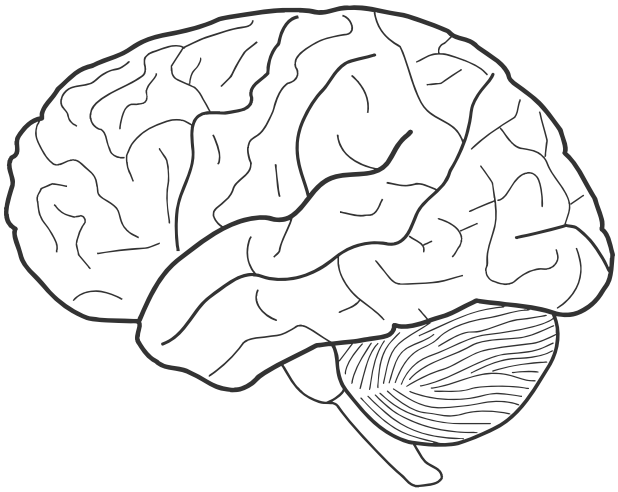
In the brain pictures below, draw the region in the description.



The Brain Stem: Mediates our primary regulatory functions, including body temperature, heart rate, respiration, and blood pressure.



Diencephalon and Limbic System: Responsible for emotional responses that guide our behavior, such as fear, hate, love, and happiness.



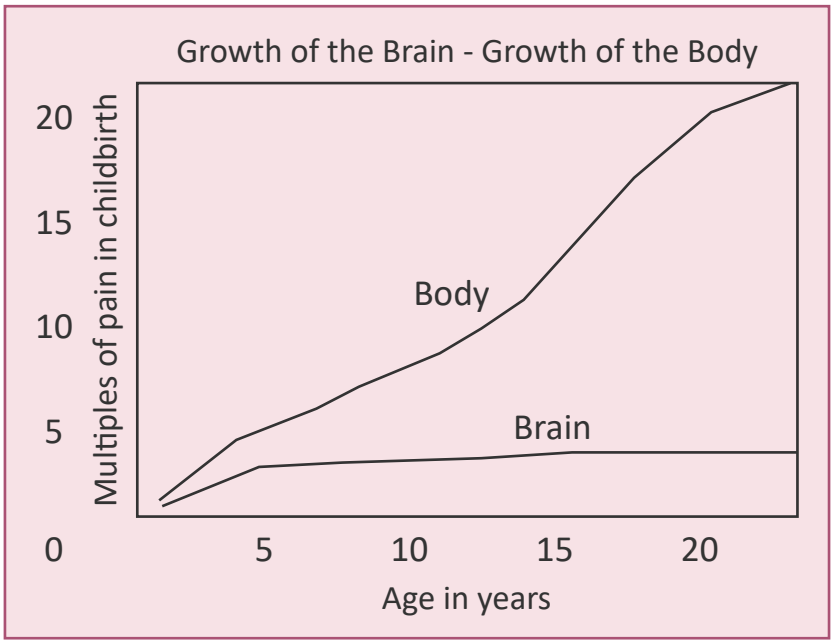
Cortex: Regulates the most complex and crucial human functions, including speech and language, abstract thinking, planning, and deliberation decision-making.

Question and Answer: After stating that "We have seen the parts of our brain, even if roughly", the following questions are asked, and answers are taken respectively.

1. How do you think our brain develops?

2. At what age does our brain stop developing?

Answer 1: The graph below is projected on the board.



After the graph is projected, explanations are expressed:

The physical growth of the human body increases in a roughly linear fashion from birth to puberty. In contrast, the physical growth of the brain follows a different path. The fastest growth rate occurs in utero, and the brain grows rapidly from birth to 4 years of age. The brain of a 4-year-old child is equal to 90 percent of its adult size! Most of the physical growth of the brain's neural networks occurs at this time. It is a time of great opportunity for the developing child: Reliable, predictable, formative, and repetitive experiences can help to express a wide range of genetic potential. Unfortunately, this is also the time when the organizing brain is most vulnerable to the most devastating effects of threats, neglect, and trauma.

However, this early pattern of brain growth does not mean that the development or organization of the brain has ended. Important neurodevelopmental processes continue throughout childhood and adolescence as the brain's systems become more complex. Important cortical remodeling and myelination, i.e., brain cell development, continue until the 25s.

Cortical

Limbic

Midbrain

Brainstem

The human brain develops sequentially, following the order in which its areas mature. Beginning with the brain stem, the most primitive and central regions develop first. As a child grows, each successive part of the brain (from the center to the cortex) undergoes significant changes and develops in turn. However, for each area to function properly, appropriate timing, patterning, and repetitive experiences are necessary.

Answer 2: The traditional belief that the human brain becomes static at the age of 20 has been challenged by recent studies. What does this mean? It means that we can acquire new skills as we age, but the way we acquire these skills changes over time. The human brain has the most grey matter (the tissue containing neurons, nerve fibers connecting neurons, and support cells) in early adolescence, and after this period, the amount of grey matter begins to decrease. Synapses (the connections between nerves) reach their peak early in life; a 2-year-old child has 50% more synapses than an adult. While the specifics are less crucial, the brain is continually developing and changing during the first 20 to 30 years of life, which influences the context in which learning occurs. Although the adult brain may not be as adaptable as that of a child or adolescent in certain ways, it remains open to learning and change. Additionally, because the adult brain's adaptability differs from that of younger brains, learning as an adult occurs through somewhat different mechanisms. **So what does this mean?** If we young people and adults put in enough effort, our brains will find a way.

Objective 4: Teachers will be able to define neuron and plasticity at the end of the course.

Duration: 15-30 min

Materials:

- Basketball
- Tire package
- Glove
- Image or model of the human brain
- T table “What did I feel during writing?”

METHOD

Demonstration: Enter the classroom with the following materials.

- Basketball
- Package tyre
- Glove
- Picture or model of the human brain

Before asking questions, teachers will be told, "Remember! There is no right or wrong answer to the questions asked".

Ask: Regarding the materials brought in,

- Which of these ingredients do you think is strange in combination with the others?
- Any other weird stuff?
- Can you tell me why you think it's weird?

After receiving the answers, he/she shows the teachers how the glove and the rubber band stretch and says, "I want you to think about why I showed you the glove and the rubber band while I was reading the book."

Say-Do: T Table is distributed to the teachers. They are asked to write the sentence "I can achieve everything." on the table first with the hand they write and then with the hand they do not.

How I Felt While Writing	
The hand I use for writing	The hand I do not use when writing

Ask:

- What did you feel when you were writing by hand? How did you feel when writing with the other hand?
- Why is it easier to write with one hand than the other?

Answers are taken. Let's answer whether the answers are correct or not with the video.

Watch: https://www.youtube.com/watch?v=ELpfYCZa87g (neuroplasticity video belongs to sentis channel

The video and the answers connect. Again, it emphasizes why we write easily with the hand we use, but it also emphasizes that we can improve our writing with the other hand if necessary.

Neuroplasticity is the ability of the brain to change and develop throughout life, so it guarantees continuity of learning.

LET'S SEE IF THESE THINGS WE SAY MEAN WHAT WE SAY IN REAL LIFE (Stories are read)

Read-Share:

Neuroplasticity and Stories

1. Taxi Drivers Have Bigger Brains

The brains of the drivers of London's famous black cabs were found to be larger than usual. According to the research, as taxi drivers memorize the roads, their brains develop. Becoming a taxi driver in London requires at least 2 years of study.

It has been revealed that a part of the brain of taxi drivers in London, the capital of England, grows over time to remember the city's roads. According to the research, the more time they serve as taxi drivers, the larger the relevant part of the brain becomes.

In front of the brain's frontal lobe is a section called the 'hippocampus.' This region has been found to play an important role in orientation in birds and other animals. Now, researchers from University College London analyzed the tomographs of London taxi drivers, with 16 drivers participating in the study.

As a result, the 'hippocampus' region, also known as the orientation center, which plays a vital role in the learning process, was larger in taxi drivers than in the general population.

The research was published in the Bulletin of the National Academy of Sciences. 'A specific part of the hippocampus, the posterior part, was larger in taxi drivers, while the anterior part was relatively smaller,' researcher Dr. Eleanor Maguire told the BBC. The growth was also more pronounced as the length of service as a taxi driver increased.

According to Maguire, gray cells in the hippocampus are remodeled as the brain evaluates navigational information. 'This is very interesting,' says the British neurologist, 'because a healthy human brain undergoes structural changes.

Being A Taxi Driver Is Not Easy

'It seems there is a decisive relationship between the navigational behavior of taxi drivers and brain changes,' says the British researcher. Scientists hope to use the information gathered from this study to develop new rehabilitation programs for patients suffering from memory loss due to Parkinson's disease or brain injuries.

Of course, these research findings only apply to black London taxi drivers because becoming a driver in London is no easy feat. It's not enough to obtain a taxi license and a car; about 23,000 black taxis are in London. A taxi driver must know every street, alley, and side street within a 1500 km² area, and it takes roughly two years to memorize all this. However, that's still not sufficient. The taxi driver must demonstrate that they have memorized every inch of London. About 3,500 people take the taxi driver's exam each year, but only one in five candidates earns the right to sit behind the wheel.

2. Cameron Mott and the Right Brain

Shelly Mott said, "It was very scary because you can't imagine what your child will be like after that kind of brain surgery. It feels like he can't remain the same child," says mom Shelly Mott. "It was absolutely the right choice. We knew what was wrong with her, and we understood it was our only option to help her." Doctors believed that removing the right side of her brain, which controls the left side of her body, would paralyze her. However, after the operation, everyone was surprised when she unexpectedly began to move. The only conclusion that could be drawn was that the right side of the brain was forming new connections that the left side needed to perform its functions. Furthermore, this growth happened much faster than the doctors had anticipated. He managed to leave the hospital only four weeks after the operation. Cameron, whose physiotherapy process has recently concluded, now dreams of becoming a ballerina. She is now a university student...

Discuss: You have listened to both stories;

1. What do you think about these stories?
2. Do you think we can all change our daily lives based on what is expressed in these stories? (If yes, how? If no, why?)
3. Link to new video.

Watch-Discuss: https://www.youtube.com/watch?v=MFzDaBzBlL0 (The backward Brain Bicycle - Smarter every day)

After the video, we will move on to the topic of neurons. As in the video, the work of neurons is the basis of neuroplasticity. Now, let's examine what a neuron is and how it works.

Objective 5: Teachers will be able to define neurons at the end of the course.

Duration: 15 - 30 min.

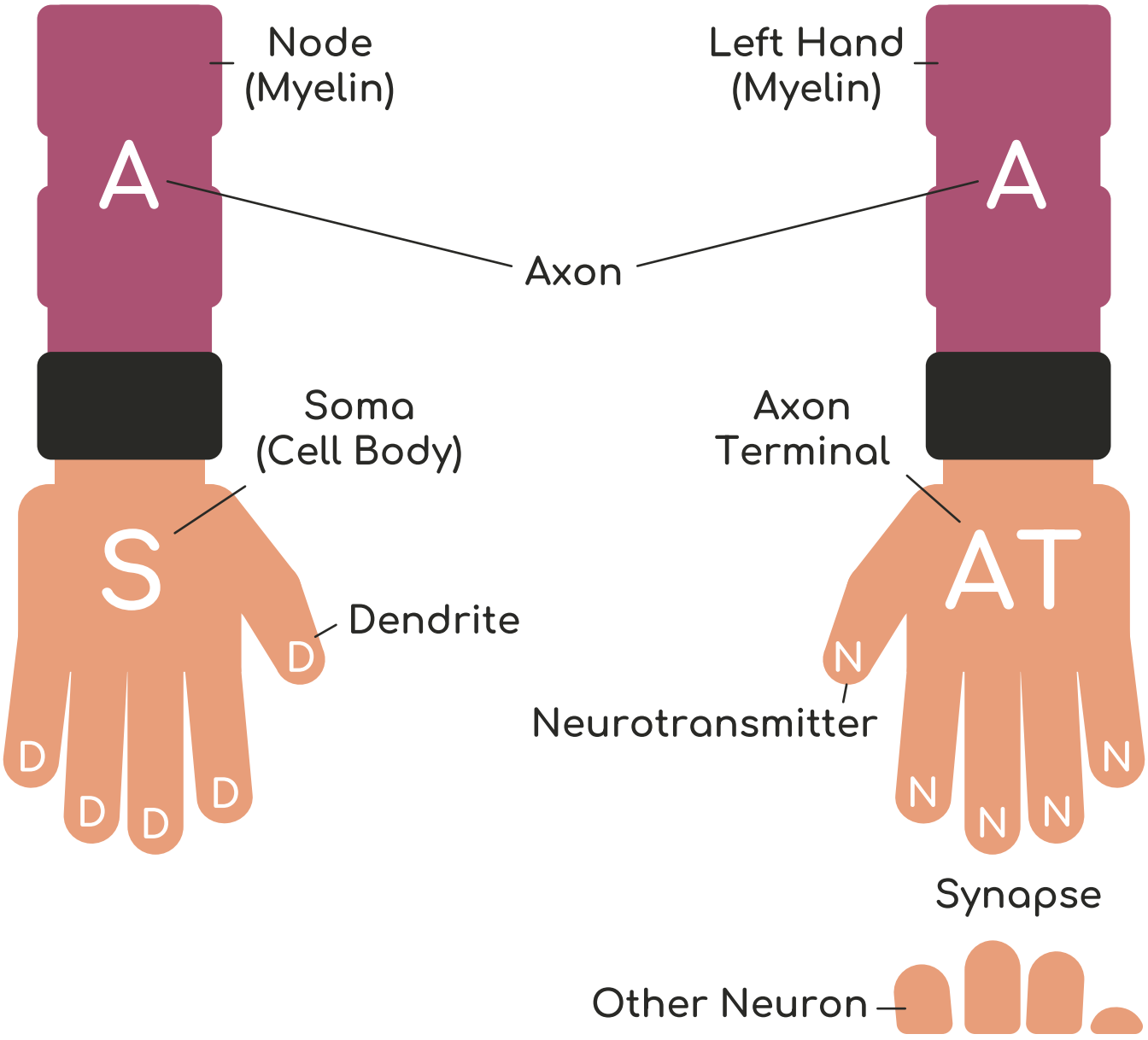
Materials:

- Pencil (the kind of pencil that can scratch and erase the body)

METHOD

Watch: https://www.youtube.com/watch?v=6Ct6NDRlDuw video opens. (Anatomy of the neuron Khan Academy video.)

Activity: Let's reinforce what we have watched. "Neurons in our arms" activity is done.



Pencils are distributed to the teachers. They are asked to write "D" on all fingers of the right hand, and they are told that these are dendrites. They are asked to write "S" on the right hand. This is soma (cell body). The arms are asked to write "A," which is the axon. They are told that each knuckle of the arm is Myelin. "A" is written on the left arm and states that the axon continues. The left hand is asked to write "AT," and this is the Axon Terminal. "N" is written on all fingers of the left hand, and this is a Neurotransmitter.

(Neurons consist of three parts. Dendrites are tree-like branches that receive inputs from other neurons. These dendrites extend to the cell body, containing DNA that ensures the cell's survival. Finally, axons are living appendages of varying lengths (ranging from microscopic lengths in the brain to 1.80 meters down the legs). Axons are often compared to cables because they carry electrical impulses very quickly (between three and 300 kilometers per hour) compared to the dendrites of surrounding neurons. Axons do not touch neighboring dendrites; they are separated by a microscopic gap called a synapse. When an electrical signal reaches the end of an axon, it triggers the release of a chemical carrier known as a neurotransmitter into the synapse. The chemical carrier travels to the dendrite of a nearby neuron and excites or inhibits that neuron. **When we say that neurons form new connections, we mean that this change occurs at the synapse and either strengthens or weakens the interactions between neurons. So, learning either happens, or it doesn't.**

Watch: Did you know that neurons can communicate with one another? Video on.

https://www.youtube.com/watch?v=hGDvvUNU-cw (How neurons communicate by brainFacts.org).

Watch: After the video, a brief clip begins by inviting viewers to look at real neurons. https://www.instagram.com/reel/Ces_oIqBrV7/?igshid=MDJmNzVkMjY%3D (available on medlok1 instagram account).

MODULE 2: PERSEVERANCE

Objective 1: Teachers will be able to describe their perseverance level at the course's end.

Duration: 15 - 30 min.

Materials: Short Perseverance Scale (Appendix 2)

METHOD

Do:

1. Distribute the scales to the teachers and explain how to fill them in.
2. Teachers are asked to evaluate their scales (items 1, 3, 5, and 6 are reverse coded. High scores indicate a high level of perseverance. It can also be scored according to sub-dimensions. 1. Consistency/intensity of interest sub-dimension (PASSION): 1st, 3rd, 5th, 6th items. 2. Persistence in endeavor sub-dimension (DETERMINATION): 2nd, 4th, 7th, 8th items). "Perseverance" levels are determined by making score comparisons.

Description:

Perseverance is the average of how passionately you do something and how determinedly you pursue that passion.

TALENT + PERSEVERANCE = SKILL

SKILL + PERSEVERANCE = SUCCESS

Talent, an innate characteristic, is how fast **your skills** develop when you make **an effort**. Success is what happens when you use the skills you have acquired with effort. If we need to formulate it,

Talent + Perseverance = Skill

Skill + Perseverance = Success

The formula shows that talent and skill are necessary for success, **but perseverance is much more important**.

Read: J. K. Rowling's Success Story That Can Inspire You Not to Give Up (Presentation to be prepared and read, additions to be made from other sources, and pictures to be added)

Many people have heard that he became famous with the Harry Potter series and was not well known before that. However, his life was not easy before that, and he lived on the edge of the abyss many times.

The year 1990, Rowling was only 25 years old. Ideas such as Harry Potter, Wizard School, etc., formed in her mind in those years. One day, while traveling from Manchester to London by train, she starts to write as soon as she gets on the train. He got so into it that he continued to write without taking a breath when he got home. In December of the same year, his mother passes away, and this causes him to enter a period of pause. he begins to experience changes in his life. This loss also affects the structure of the fictional characters he creates.

Shortly afterward, she moved to Portugal and started working as an English teacher. She met a journalist, and they got married in 1992. One year later, she had a child. However, a few months after the birth of her daughter, she divorced due to domestic violence. He decided to return to England again, and on his way back, he finished three chapters of Harry Potter. But returning to England was not going to make her life rosy.

And that's exactly when he hits rock bottom. He has had a troubled marriage, had to change countries, has a child to support, and is unemployed to death. During this time she struggled with depression and even attempted suicide. She even received assistance from social services for poverty. However, none of these experiences prevented her from writing. She accepted her difficult conditions and did the only meaningful thing for her, namely writing.

She devoted all her energy to finishing the book she had started, even going to cafes with her daughter occasionally and continuing her book. In contrast, her daughter slept on her lap. Finally, she sent her completed book to 12 publishing houses but did not receive a positive response from any of them except one. That publishing house was "Bloomsbury," one of the smallest ones.

The chairman of the publishing house's board of directors was interested in the book because his 8-year-old child, whom he had read the book to, liked the first part very much. He immediately requested one more, and there was no end to the requests after that date. The past is the past, and his books have sold over 400 million copies worldwide. The films that followed broke box office records. All this made Rowling the first female author to become a billionaire.

He experienced all this success because he made a choice: He chose not to give up after failures, no matter the cost. In his speech at a Harvard diploma ceremony, he discussed this issue as follows.

"You may never have as great failures as I have, but some are inevitable in life. Only people who live extremely carefully do not fail and have hardly lived at all. In such a case, you are defeated by forfeit."

Question:

1. What kind of perseverance did Rowling show in writing books?
2. What would have happened if Rowling had abandoned her goal?
3. Do you think about the time we spend working towards a goal?
4. Can you think of a time when you were successful? What steps do you think led to your success?

Watch: https://www.youtube.com/watch?v=H14bBuluwB8 (Angela Lee Duckworth: The key to success? Fortitude)

Appendix 2: Short Perseverance Scale

The results obtained from these questionnaires will be used in a scientific study. You are invited to evaluate yourself after reading these statements and mark an **(X)** next to the option that best represents your feelings. Opposite each question, you will find: **(1) Not at all for me, (2) Very little for me, (3) A little for me, (4) Quite a bit for me, and (5) Completely for me**. Please provide ONE answer for each statement and do not leave any blank. I appreciate your thoughtful responses and thank you for your contributions.

1	Sometimes, new ideas and projects confuse me about my old ones.	1	2	3	4	5
2	Challenges do not discourage me.	1	2	3	4	5
3	I get caught up on a specific idea or project for a bit, but then I lose interest.	1	2	3	4	5
4	I'm a dedicated individual.	1	2	3	4	5
5	I often set goals for myself, but I tend to pursue different ones instead.	1	2	3	4	5
6	I struggle to stay focused on projects that take longer than a few months to finish.	1	2	3	4	5
7	I complete whatever I begin, regardless of the circumstances.	1	2	3	4	5
8	I work hard.	1	2	3	4	5

Objective 1: Teachers will be able to explain the importance of determination and perseverance.

Activity Name: Determination and Perseverance

Duration: 40 min.

Materials:

- Video: Angela Duckworth – Grit: the power of passion and perseverance (YouTube)
- Paper
- Pencil

METHOD

Watch-Discuss:

1. The facilitator enters the classroom and greets the teachers.
2. Before mentioning the activity, the facilitator asks the teachers a few questions.
3. Then, a video is watched together with the teachers via the folowing link: https://www.youtube.com/watch?v=H14bBuluwB8
4. After the video, a discussion takes place.
5. Following the discussion, the Grit Map activity begins.
6. Teachers write sentences about being a persevering teacher.
7. The session ends with closing questions.

Description:

1. After greeting the teachers, the facilitator asks the following questions:
    - “What is success in the classroom dependent on?”
    - “Is it intelligence or effort?”
2. Once teachers have shared their answers, the video Angela Duckworth - "Grit: The Power of Passion and Perseverance" is watched.
3. After the video, the discussion is initiated with the following questions:
    - “What is Duckworth’s definition of grit?”
    - “What promotes or suppresses grit in our classrooms?”
    - “Where has grit taken you in your own professional journey?”

Conceptual Note (Provided by the Trainer):

“Grit is the capacity to show consistent and persistent effort toward long-term goals. Determination, on the other hand, is the emotional and mental commitment that ensures the continuity of this effort. In the learning process, the presence of these two qualities is a key factor in a student’s success.”

4. Once the concept of grit is well understood, the "Grit Map" activity begins. In this activity, teachers are expected to analyze moments when students gave up and explore how they can offer support at these critical points.
5. Participants are paired.
6. Each participant writes down a moment they observed in their classroom when a student gave up.
7. An A3 sheet is divided with two headings:
    - "Moment of Giving Up" – "Supportive Teacher Response"
    - "Moments of giving up are often times when a student's courage to learn has been shaken. Recognizing these moments and responding with constructive language offers critical opportunities to rebuild grit and determination."
8. Participants fill in their charts and share them within their groups.
9. Then, to help teachers reflect on how they foster grit and determination in their own classrooms, they are asked to respond to the following questions:
    - “What do you do in your classroom to support students in being persistent and determined?”
    - “What would you say to a struggling student that emphasizes grit and determination?”
10. Participants are asked to write their answers individually on paper. 5 minutes are given.

At this point, teachers are expected to include phrases such as:

- “You can’t do it yet, but your effort is bringing you closer.”
- “The determination you show when facing challenges makes you stronger.”
- “Continuing on shows your belief in your ability to succeed.”
- “Not giving up is the first step to being able to do it.”
- “This process may not be easy, but your effort is truly valuable.”

11. Then, participants share their responses, and similarities and differences are discussed. The strongest examples are gathered on the board.

12. The potential impact of these expressions on students is discussed.

- "A teacher's language shapes a student's belief in themselves and in the learning process. Phrases that emphasize grit and determination nurture students' mental resilience."

13. To close the session, teachers are asked the following questions and instructed to write their reflections on cards provided:

- "After today's session, what are your thoughts on grit and determination?"
- "What practices can you implement in your classroom to help instill these values in your students?"

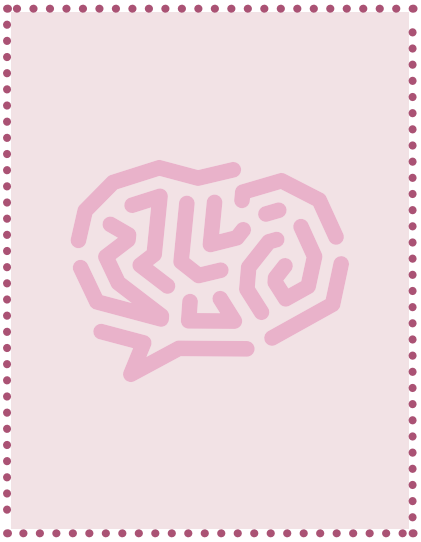
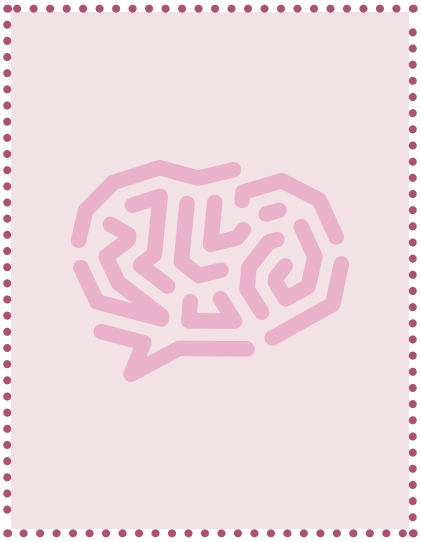
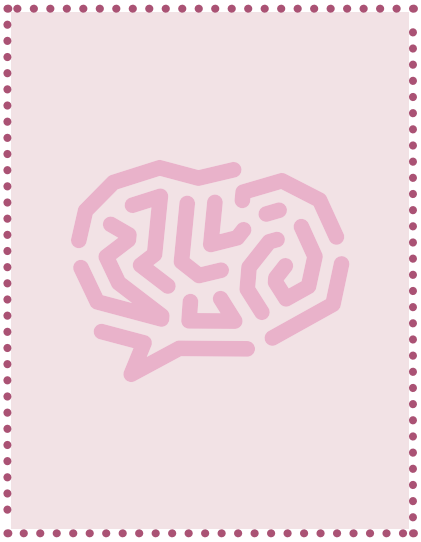
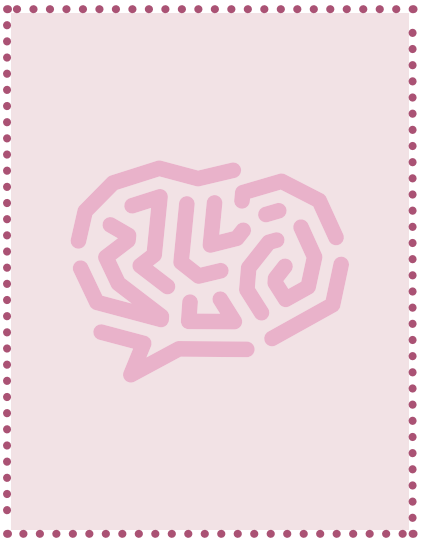
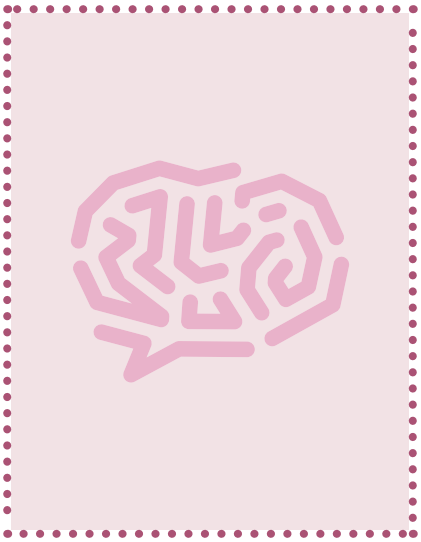
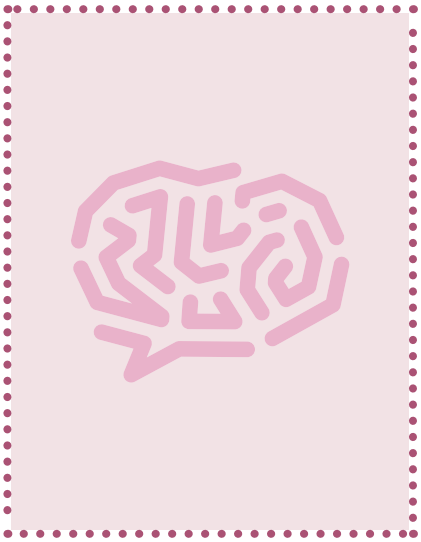
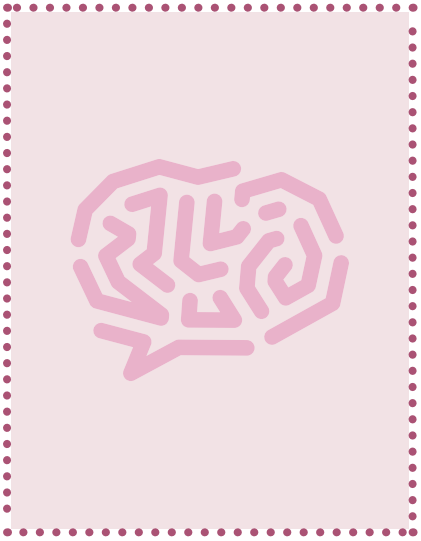
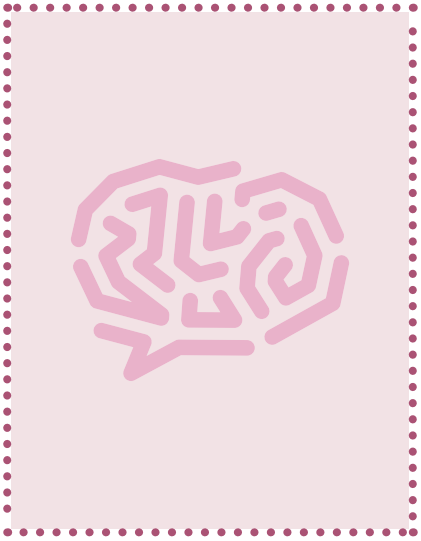
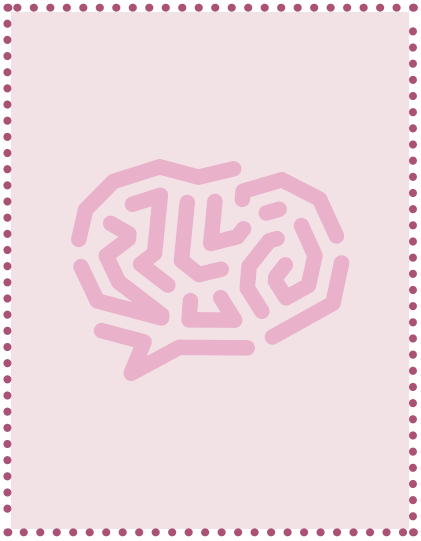
Each participant is given one card.

While evaluating this activity, attention should be paid to how teachers approach and manage the concepts of grit and determination. It is essential that they are able to explain the importance of showing persistence and modeling grit to their students—without pushing them excessively. For teachers who experience difficulty in this area, examples from previous activities can be revisited, emphasizing how the individuals in those examples can be introduced to students in simpler and more relatable ways. The teacher evaluation is concluded after assessing their understanding of the concepts and how they plan to implement them in practice.

When I am committed and resolute; I can achieve the following in science class:	When I am committed and resolute; I can achieve the following in science class:	When I am committed and resolute; I can achieve the following in science class:

When I am committed and resolute; I can achieve the following in science class:	When I am committed and resolute; I can achieve the following in science class:	When I am committed and resolute; I can achieve the following in science class:

When I am committed and resolute; I can achieve the following in science class:	When I am committed and resolute; I can achieve the following in science class:	When I am committed and resolute; I can achieve the following in science class:

MODULE 3: CREATING A GOAL

Objective 1: Identify the differences between goals and dreams.

Activity Name: Where Do I See Myself?

Duration: 30 - 40 min.

Materials:

'Where Do I See Myself?' Activity Sheet

Pen

Note to the Trainer: Teachers have different guidance, implementation, and evaluation steps than students. During this and similar activities, teachers should adopt an explanatory rather than questioning attitude, and their views on these concepts should be determined based on their practical application.

METHOD

Do:

1. The trainer begins the activity with warm-up questions.

- 'Where do you think is the "stop" point when people dream or set goals for themselves? Or is there such a point?'
- 'Do you limit yourself, or are you one of those who say 'there are no limits to imagination'?'

2. The participants' responses are listened to, and different perspectives are encouraged. If necessary, the educator deepens the discussion with guiding questions.

Connection to Mindset Theory:

- 'According to Carol Dweck's theory, individuals with a fixed mindset set limits from the outset by saying 'I can't', while those with a growth mindset learn to turn their dreams into realistic goals.'

3. After discussing this question with the teachers, the activity sheets are distributed and the process begins.

Apply:

1. The trainer distributes the activity sheet to the teachers and provides the following explanation:

WHERE DO I SEE MYSELF?	
1 DAY LATER	What will I be doing? / What do I need to do to reach this point?
1 WEEK LATER	What will I be doing? / What do I need to do to reach this point?
1 MONTH LATER	What will I be doing? / What do I need to do to reach this point?
6 MONTH LATER	What will I be doing? / What do I need to do to reach this point?
1 YEAR LATER	What will I be doing? / What do I need to do to reach this point?
5 YEAR LATER	What will I be doing? / What do I need to do to reach this point?

- 'In this activity, you will think about where you see yourself in 1 year, 5 years, and 10 years. You will write down the steps you need to take to reach these points.'
- 'When applying the same activity with your students, it is important to give two extreme examples: For example, "doing well on an exam" (goal) and "going to the moon" (dream). This makes it easier for students to distinguish between concrete and abstract concepts.'

2. Participants are given approximately 10 minutes. A quiet, individual work environment is provided.

3. The trainer initiates the discussion with the following questions:

- 'What made the goal you set a goal?'
- 'What challenges might you encounter when implementing this activity with your students?'
- 'What tools might be needed to transform the goal into a vision?'
- 'How can you differentiate the steps you took in the activity from those of your students?'

4. Participants share their examples, and the trainer provides explanatory and supportive feedback. The following criteria are considered:

- Were participants able to define the difference between a goal and a dream?
- Were they able to explain it with examples from their own lives?
- Were they able to think about how to adapt this activity to their classroom?

Connection to Mindset Theory:

'A growth mindset believes in the student's potential but teaches them to progress with goals and steps that will support them. As teachers, we can show them ways to turn their dreams into goals without belittling their imagination.'

Important Note: Providing verbal feedback to teachers ensures that the assessment process is natural and learning-focused. An explanatory rather than a judgemental approach should be adopted.

Objective 2: Set concrete goals.

Activity Name: SMART the Goals: Turning Achievements into Effective Goals

Duration: 80 min.

Materials:

- Achievement, SMART Achievement Editing and SMART-ified Achievement Cards
- Pen

METHOD

Do:

1. The trainer enters the classroom, greets the participants, and assesses their prior knowledge of the SMART concept:

'Have you heard of SMART goals before? Do you know in which areas they are used?'

2. Depending on the answers, the concept is explained or the trainer moves on.

'Today, we will examine our Professional and teaching goals for our students through the SMART lens. By the end of this activity, we will learn how to make the learning outcomes in our curriculum more measurable and achievable.'

Apply:

1. The teacher writes the word 'SMART' on the board and explains each letter individually:

- "SMART is a framework that makes goals clearer, more achievable and measurable. It consists of five basic criteria:

  S – Specific: The goal should be clear and precise. What do we want to teach?

  M – Measurable: How will success be evaluated? How will the student's level of success be understood?

  A – Achievable: It must be realistic. Can students achieve this goal? Is it realistic and appropriate for their level?

  R – Relevant: It must be consistent with the teaching program and the student's needs. Does it have meaning in real life?

  T – Time-bound: It should be completed within a specific time frame. How long is it expected to take to achieve the goal?

'In today's activity, we will rearrange the steps using these steps. I will give you an example; then, I will distribute the relevant cards and ask you to do it. It may be a long and time-consuming activity but don't rush. It is very important to organize these gains properly.'

2. Continue with the following sentences:

'Setting our goals according to the above criteria will take us to the next level, but of course, experience is needed. Identify 4 or 5 goals you want to achieve in the short term. Imagine achieving these goals within the next 10 days. How would you feel? For example;

- Organise your scattered lecture notes.
- Tidy up your locker in the staff room.
- Write sample questions for your students.

3. After discussing their feelings, the educator continues with the SMART steps and applications.

4. Goes to the board and writes, 'Explain the importance of mitosis for living things.'

5. Write the letters SMART on the board and explain each one by drawing a line through them:

Specific (S): The role of mitosis in living organisms should be clearly stated.

Measurable (M): The learning outcome should be measurable so that the student can demonstrate that they have achieved it.

Achievable (A): It should be a goal that 7th-grade students can understand and achieve.

Relevant (R): It should be consistent with the curriculum and the student's knowledge of biology.

Time-bound (T): It should be a goal that can be achieved within the lesson time.

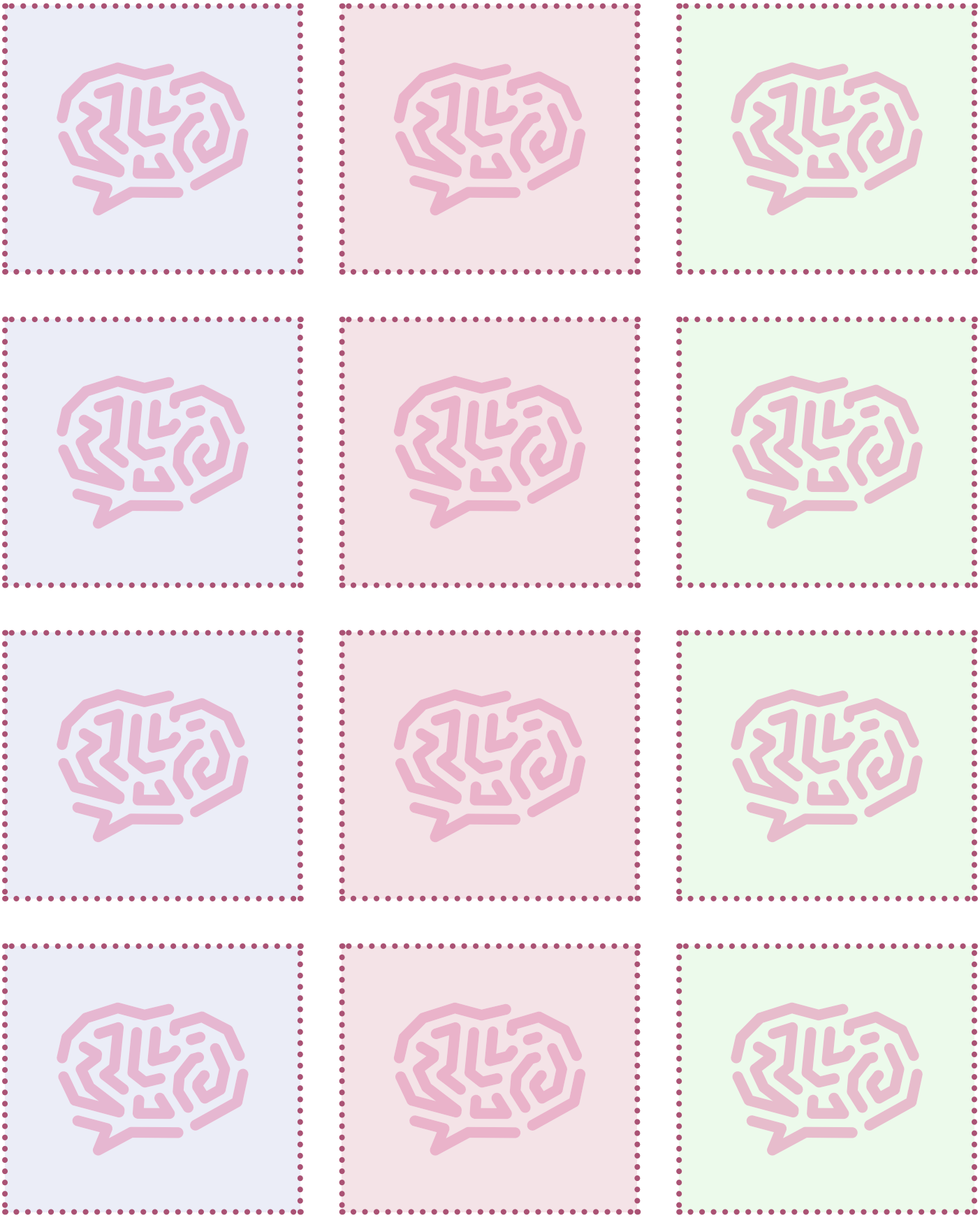
6. When this learning outcome is revised, it will take the following form:

- The student explains the importance of mitosis in living organisms' growth, renewal, and reproduction processes by providing examples within two class periods and demonstrating these processes using a model.

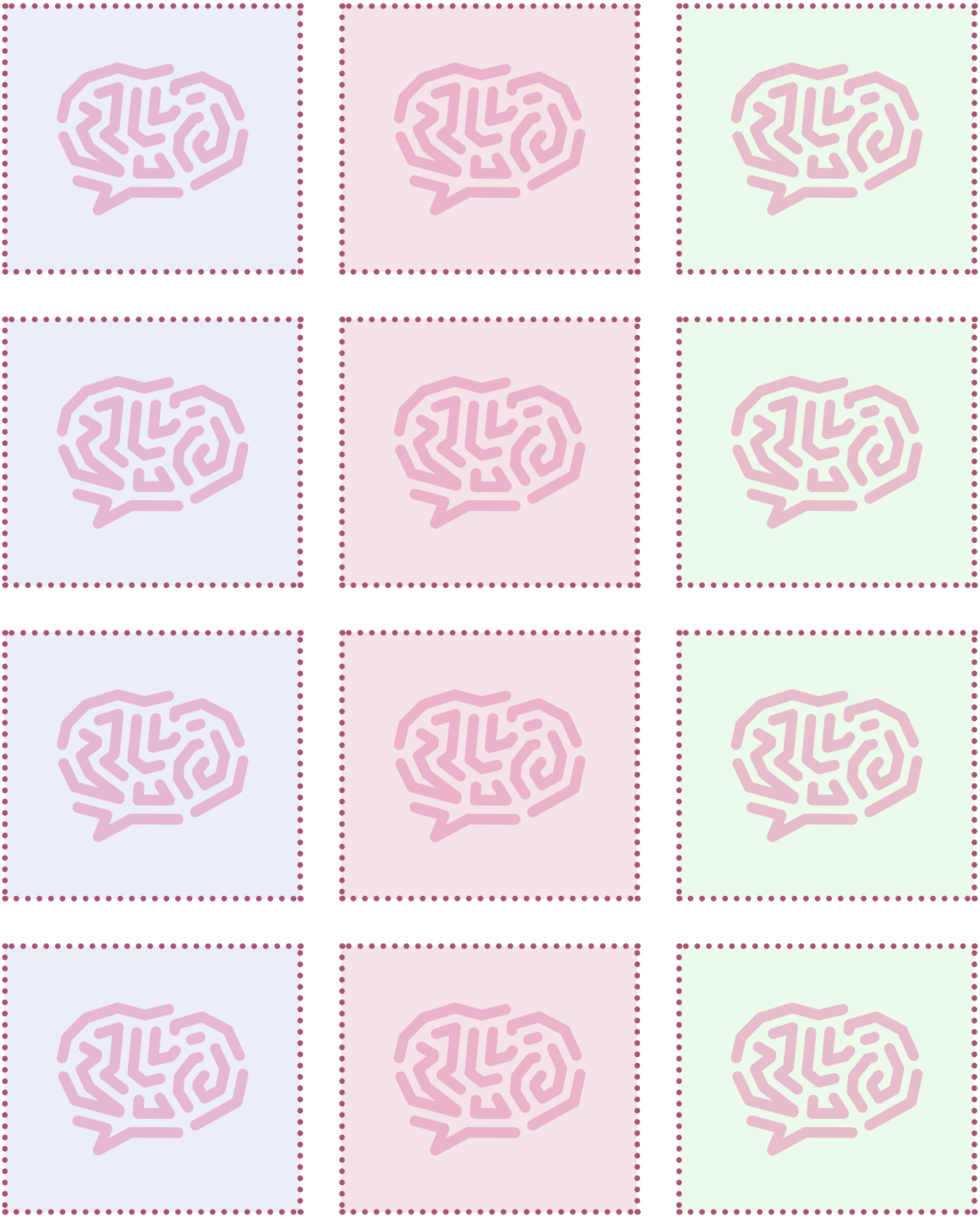
7. Teachers must also revise the learning outcomes listed on the other cards similarly.

8. Participants are distributed with Learning Outcome Cards prepared from various disciplines.

Compares animal and plant cells in terms of their basic parts and functions.	Specific (S): Measurable (M): Achievable (A): Relevant (R): Time-bound (T):	New acquisition organized by SMART steps:
Discusses and relates how views on cell structure from past to present have been influenced by technological advances.	Specific (S): Measurable (M): Achievable (A): Relevant (R): Time-bound (T):	New acquisition organized by SMART steps:
Explains the importance of mitosis for living organisms.	Specific (S): Measurable (M): Achievable (A): Relevant (R): Time-bound (T):	New acquisition organized by SMART steps:
Explains the relationship between cell-tissue-organ-system-organism.	Specific (S): Measurable (M): Achievable (A): Relevant (R): Time-bound (T):	New acquisition organized by SMART steps:



Explains the importance of meiosis for living organisms.	Specific (S): Measurable (M): Achievable (A): Relevant (R): Time-bound (T):	New acquisition organized by SMART steps:
Demonstrates with a model how meiosis occurs in reproductive parent cells.	Specific (S): Measurable (M): Achievable (A): Relevant (R): Time-bound (T):	New acquisition organized by SMART steps:
Compares the differences between mitosis and meiosis.	Specific (S): Measurable (M): Achievable (A): Relevant (R): Time-bound (T):	New acquisition organized by SMART steps:
Explains that mitosis consists of different stages following one another.	Specific (S): Measurable (M): Achievable (A): Relevant (R): Time-bound (T):	New acquisition organized by SMART steps:



9. Each teacher is asked to rearrange 2–3 learning outcomes they have selected according to the SMART criteria.

10. Participants pair up or form small groups.

11. They review the learning outcomes they have rearranged with each other.

- Have the SMART criteria converted the learning outcomes?
- Are the levels of measurability and feasibility clear?
- Have participants provided explanations and justifications?

12. Each participant shares their partner's goals' **strong and improvable** points.

13. Teachers are evaluated by creating a discussion environment about the results that can be achieved with the SMART concept. However, teachers should evaluate each other's old and new achievements, not each other. The most important criterion for this should be student performance. The educator asks participants the following questions:

- 'How did writing SMART goals change the achievement?
- What differences does it create for students in practice?
- How can you incorporate this model into your planning processes?

Connection to Mindset Theory:

A growth mindset is essential not only for students but also for teachers in their professional development. The SMART model provides teachers a framework for setting goals, planning, and evaluating implementation.

Objective 3: Students will be able to design an activity that allows them to set concrete goals.

Activity Name: Break Down the Goal, Support the Student: Concrete Concept and Learning Area Awareness

Duration: 80 min.

Material: Area separation cards.

Materials:

- A3 paper
- Colored pens
- Post-it notes.

Note to the Trainer: Teachers are expected to design activities to help students develop concrete goals and learn how to support their process. Teachers should be able to clearly explain how they will guide their students, teach them supportive behavior methods during transitions, and not neglect to consider their students' desires and abilities throughout the process.

METHOD

Do:

1. After entering the classroom, the trainer begins a discussion with the teachers about the students' learning areas. Here, the trainer introduces the activity that will be carried out today.
2. Then, as described in the 'Explanation' section, the trainer provides information about the Comfort Zone, Challenge Zone, and Panic Zone, explaining why these zones exist and how they are distinguished.
3. After that, they divide the teachers into groups (2-3 people) and create another group discussion environment, giving a few examples about these areas. It is important for teachers to explain their approach to the examples given and the areas they belong to.

Description:

1. The trainer enters the classroom, greets the participants, and starts the discussion with the following questions.
    - What do your students feel during class? Are they all learning at the same comfort level?'
    - Where do you think learning takes place?

2. Short answers are obtained from the participants, and then three areas are introduced:

Comfort Zone: The area where students feel comfortable and secure but where they do not develop. For example, habits or tasks that are easy to perform.

Challenging Zone (Learning Zone): The area where students learn new things and develop by pushing themselves. This area is the first step on the path to success.

Panic Zone: The area where the student feels overly challenged, anxious, and unproductive. In this state, learning may not be effective.

3. As teachers, which zone would you prefer your students to stay in during your lessons?

4. Teachers are asked to hold a small group discussion. Each group discusses a brief example of the comfort, challenge, and panic zones. Afterwards, each group shares their ideas on how they can guide students. They use the cards provided to write down their ideas.

Comfort Zone "I keep repeating the examples that the teacher solved on the board."	Comfort Zone "Mitochondria produce energy, ribosomes synthesize proteins, but I don't try to understand how these work."	Comfort Zone Guidance Solution
Stretch Zone "I learned that copper is a conductor of electricity, and now I am researching where it is used."	Stretch Zone "I explain how mitosis takes place using drawings I made myself."	Stretch Zone Guidance Solution
Panic Zone "I have to explain the electrical circuit inside the refrigerator."	Panic Zone "I needed to design a machine and do force calculations, but I didn't know how to do it."	Panik Alanı Guidance Solution

5. Once this part is done, the trainer hands out papers to the teachers and asks them to write down something their students could set as a goal in capital letters. (GET A HIGH GRADE ON THE EXAM OR BECOME CLASS PRESIDENT).

6. Then, this goal is broken down into small steps.

   - E.g., 'Review the topic,' 'Solve 5 tests,' 'Get feedback.'

7. Then, the following sentences are constructed:

   - 'It is very important to make goals concrete for us and our students. There is a big difference between seeing a picture as a whole and examining it in fine detail. Just like looking at a picture, we must divide goals into parts. For example, if our student's goal is to become a Nobel Prize-winning chemist, the first step is to study science regularly. You must also divide your goals in capital letters into small steps.'

8. During this time, the trainer reviews what the teachers have written and evaluates these steps with them.

   - 'Is this step small enough?' 'Is this step appropriate for the student's level?'

9. After completing this section, the trainer explains as follows:

   - "The next step I would like you to take is to move these steps from your comfort zone to the challenging zone. What should students do to achieve this?
   - Example: 'For a student who cannot study science, the first step may be to solve simple questions. Over time, they can be guided to tackle more challenging ones."
   - Using such examples, we will consider and write how we can facilitate this transition between zones without overwhelming either the student or you as the teacher. The goal is not to push the student, but to encourage controlled growth. In other words, the aim is to move them out of their comfort zone without causing panic.'

Each step is written on a post-it note and stuck onto the participant area separation cards:

Confor Zone	Challenging Area	Panic Area (unwanted)
Easy to repeat	Difficult question solution	Quiz on an unknown topic

10. During this process, group members are encouraged to give each other feedback.

11. After the teachers have completed their papers, a discussion environment is created, and the papers are evaluated in groups.

12. The trainer then asks the teachers to do the following:

- 'We have set our goal and created a roadmap. One of the most important criteria in setting concrete goals is determining the appropriate time frame. Wanting to make a discovery that will go down in medical literature and do it in one week is not setting a concrete goal. We must find the most appropriate timeframe for them by considering the behaviors we want to instill in our students and the goals we support them in achieving. Let's get started.'

13. This section can provide examples such as 'study for at least one hour every day' or 'solve 50 minutes of science questions on the weekend'.

Connection to Mindset Theory:

"Small but meaningful steps are the building blocks of a growth mindset. Time management makes these steps more manageable."

14. Here, it is also necessary to emphasize the concept of the stretch zone. The goal is not for students to remain in their comfort zone, but to show them that by pushing themselves, even just a little, they can achieve different things.

15. Participants share the examples they have created.

Skills to Observe:

- Clarity and divisibility of the student-oriented goal
- Realism of the plan for transitioning between zones
- Appropriateness of the timing statement

16. After this activity is completed, all findings are organized by the teacher groups and the evaluation phase begins.

Discussion Questions:

- What benefit did breaking down the goals provide?
- Why is it important to get students out of their comfort zone?
- How does time management affect students' motivation?

As a result of this activity, teachers can observe how to support students in demonstrating perseverance during the learning process, stepping out of their comfort zones, and viewing challenge as a part of learning. This approach will positively affect not only students' academic achievement but also their attitudes and motivation toward learning.

Objective 4: Will be able to explain strategies for effective time management.

Activity Name: Managing Time Wisely: Prioritization with the Eisenhower Matrix

Duration: 80 min.

Materials:

- Example of the "Eisenhower Matrix"
- Task cards
- Colored pens
- Paper

METHOD

Do:

1. After greeting the teachers, the instructor gives information about the day's activity, the Eisenhower Matrix. This information is found in the "Apply" section.
2. After explaining to the teachers how the matrix works and providing some examples regarding the classifications used, the instructor explains the activity they will do with the Eisenhower Matrix.
3. It is essential to reemphasize the important points of the matrix again when completing the activity.

Apply:

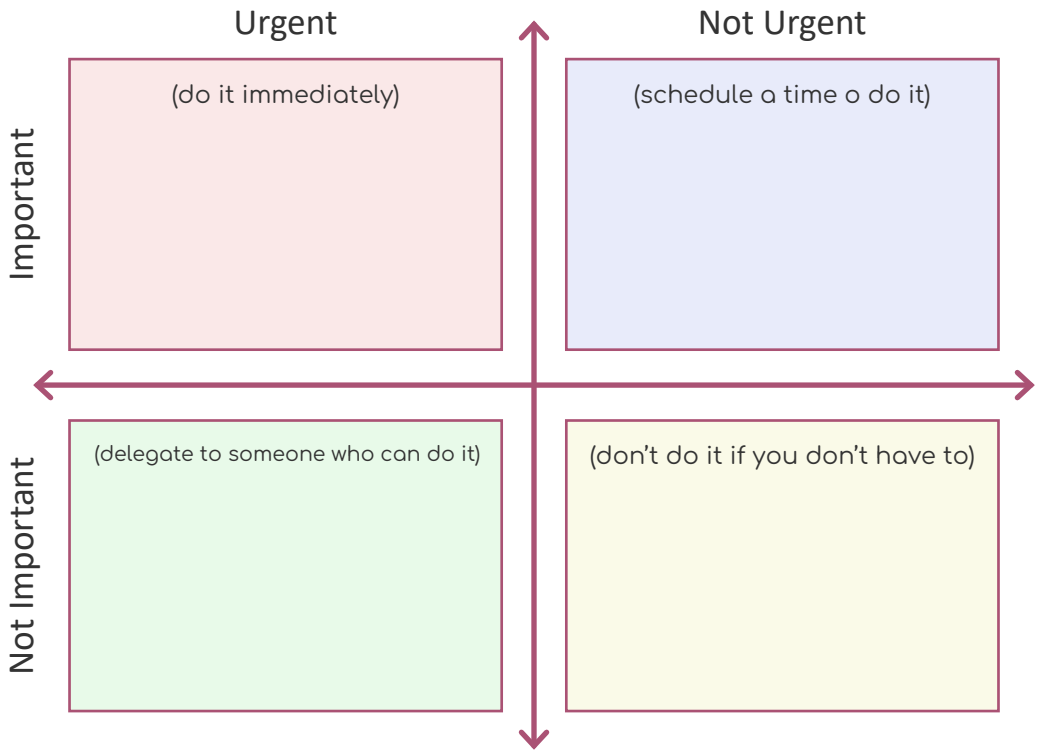
1. The instructor greets the teachers and initiates a discussion with the following questions:
    - "How do you feel when you cannot manage your time well?"
    - "What behaviors do you observe in your students when they are unable to manage their time?"
2. After this short discussion, the instructor emphasizes:

Connection to Mindset Theory:

"According to Carol Dweck, a growth mindset is not just saying 'I can do it,' but also seeking answers to the questions 'When should I do it? What should I focus on?' Effective time management is the hidden architecture of learning processes."

3. When introducing the Eisenhower Matrix to the teachers, the following sentence is used:

- "This is an Eisenhower Matrix. Has anyone heard of or seen this matrix before?"



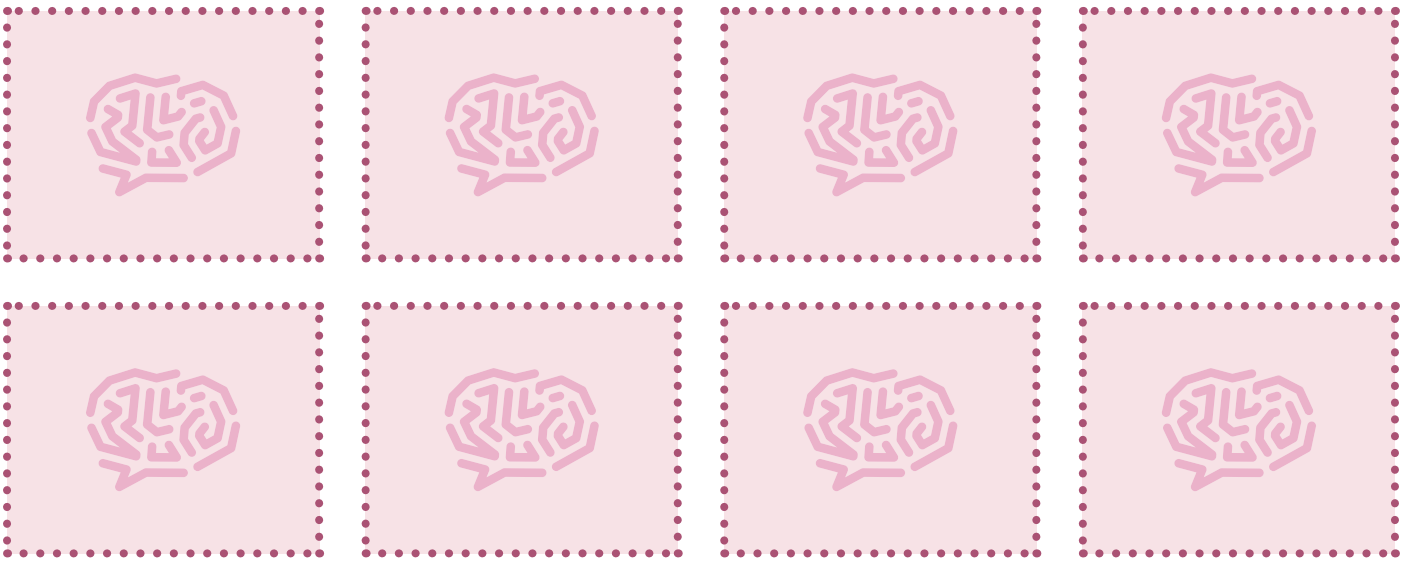
Eisenhower Matrix

- "This matrix helps us establish priorities in our lives. It assists us in classifying whether something is truly urgent enough to be done immediately, whether it is urgent but can wait a bit longer, or whether it is not urgent at all and does not need to be done right away."
- "Today, to be able to distinguish our priorities properly and to learn how to manage time effectively, we will classify tasks that we do or might do in our daily lives on this matrix. This will be an activity that we all participate in simultaneously. During this activity, you can evaluate and comment on each other's classifications. Please don't forget to provide explanations as well."
- "For example, if I start: I have 'preparing a lesson plan' written on my card. I put this card in the Important/Not Urgent area. Because preparing a lesson plan is an important task for me, but it doesn't need to be done immediately."
- "We have a few sample cards, but you can also prepare your own cards using the blank ones."

4. The activity is carried out with teachers using the matrix. Ready-made task cards are distributed to the participants (examples: duty schedule, parent meeting, break time, etc.).

Posting and updating announcements on the bulletin board inside the school	Constantly checking email or message inbox	Grading exam papers by the deadline set by the school administration	Dealing with a student's urgent situation (health issue, crisis moment)
Spending too much time on social media and wasting time	Planning exam and assessment schedules	Collecting and tracking the return of library books	Spending excessive time on paperwork by over-detailing and filing unnecessarily
Assigning students long-term projects and organizing the feedback process	Writing lengthy and detailed reports that do not directly benefit the student	Providing career guidance for students	Meeting with the principal about a student's academic or disciplinary problem
Taking on routine technical tasks such as printing or photocopying	Preparing student assignments for the upcoming month	Making unplanned decisions during the day and constantly postponing tasks	Completing documents and reports before an inspector's visit

5. Blank cards are also provided; participants write examples from their own work.



6. Each participant draws their own Eisenhower Matrix.
7. They place the tasks into the four quadrants and write a short explanation for each:
    - "I put this card in 'Important/Not Urgent' because I need to plan it, but it doesn't need to be done immediately."
8. The facilitator observes the process and asks supportive questions:
    - "What was your reasoning for placing this task here?"
    - "Why might something urgent for you not be urgent for someone else?"
9. Participants are divided into pairs and explain their matrices to each other.

Skills to be Observed:

- Placing tasks according to their priority
- Ability to explain the reasoning for classification
- Relating the matrix to personal/professional life

Connection to Mindset Theory:

"Prioritization skills are not just about time, but also about our mental resources. Those who accomplish a lot with little time are actually those who first know what to say 'no' to."

10. In the last 10 minutes, the group discusses the following questions:
    - "As a teacher, where could you use this matrix in your life?"
    - "What might students gain if they learn to use a system like this?"
    - "What would you do if you encounter a student in class who cannot manage their time?"
11. The facilitator summarizes the activity with these words:
    - "Time management is not just about putting our tasks in order; it is also about organizing our thoughts, attention, and energy. And this is directly related to a growth mindset."

MODULE 4: STUDY SKILLS

Objective 1: Teachers will gain awareness about the use of various learning strategies.

Unit: F.7.1. The Solar System and Beyond / Earth and the Universe

Outcome:

F.7.1.1. Space Exploration

F.7.1.1.4. Explains the structure of a telescope and its purpose.

a. Different types of telescopes are mentioned.

b. Light pollution is mentioned.

F.7.1.1.5. Makes inferences about the telescope's importance in astronomy development.

a. The selection of locations for observatories and the conditions these locations must meet are mentioned.

b. Contributions of Western astronomers and Turkish Islamic astronomers are mentioned.

Duration: 40 min.

Learning Strategy: Leitner Box

Materials: Paper, pen, telescope model, academic articles, concept cards, medium-sized box.

METHOD

Draw/Write:

The teacher begins the training with a short presentation explaining the importance of astronomy education to teachers. The presentation covers the following concepts:

- The contribution of astronomy education to scientific thinking skills
- The importance of observation and data analysis in the learning process
- The role of telescopes in scientific discovery
- Innovative approaches to the use of telescopes in education

Teachers are then asked to share how they teach their students about telescopes in their classes and the challenges they encounter.

Teachers are then asked to create a mind map about telescopes' history, uses, and scientific importance. The instructor explains the mind map and the steps for creating one and then shows an example.

PRACTICAL NOTES FOR TEACHERS: MIND MAP

The teacher explains the mind map:

'A mind map is a visual technique to better understand, organize, and remember information. It uses keywords, symbols, colors, and branching structures to show information in a connected way around a central concept. This technique supports creative thinking, facilitates learning, and helps retain information for a long time.'

The teacher explains the steps for preparing a mind map:

1. Identify the Central Topic
    - Write the main topic to be covered in the center of the map.
    - Colors, symbols, or images can be used to make the topic more eye-catching.
2. Identify the Main Branches
    - Identify subheadings directly related to the main topic.
    - Branches/arrows extending outward from the centre of the map are drawn for each subheading.
3. Detailing and Adding Sub-Branches
    - Sub-branches are created by adding more detailed information under each main branch.
    - Key words are used to keep the information short and concise.
4. Enriching with Colours and Images
    - Different colours are used for branches to highlight connections between topics.
    - Images, icons, and symbols can be added to make the map more interesting.
5. Creating and Reviewing Connections
    - Connections are made between topics to show relationships.
    - After completing the mind map, it is reviewed to edit any missing or unnecessary information.

Finally, the teacher details the areas of application for mind maps:

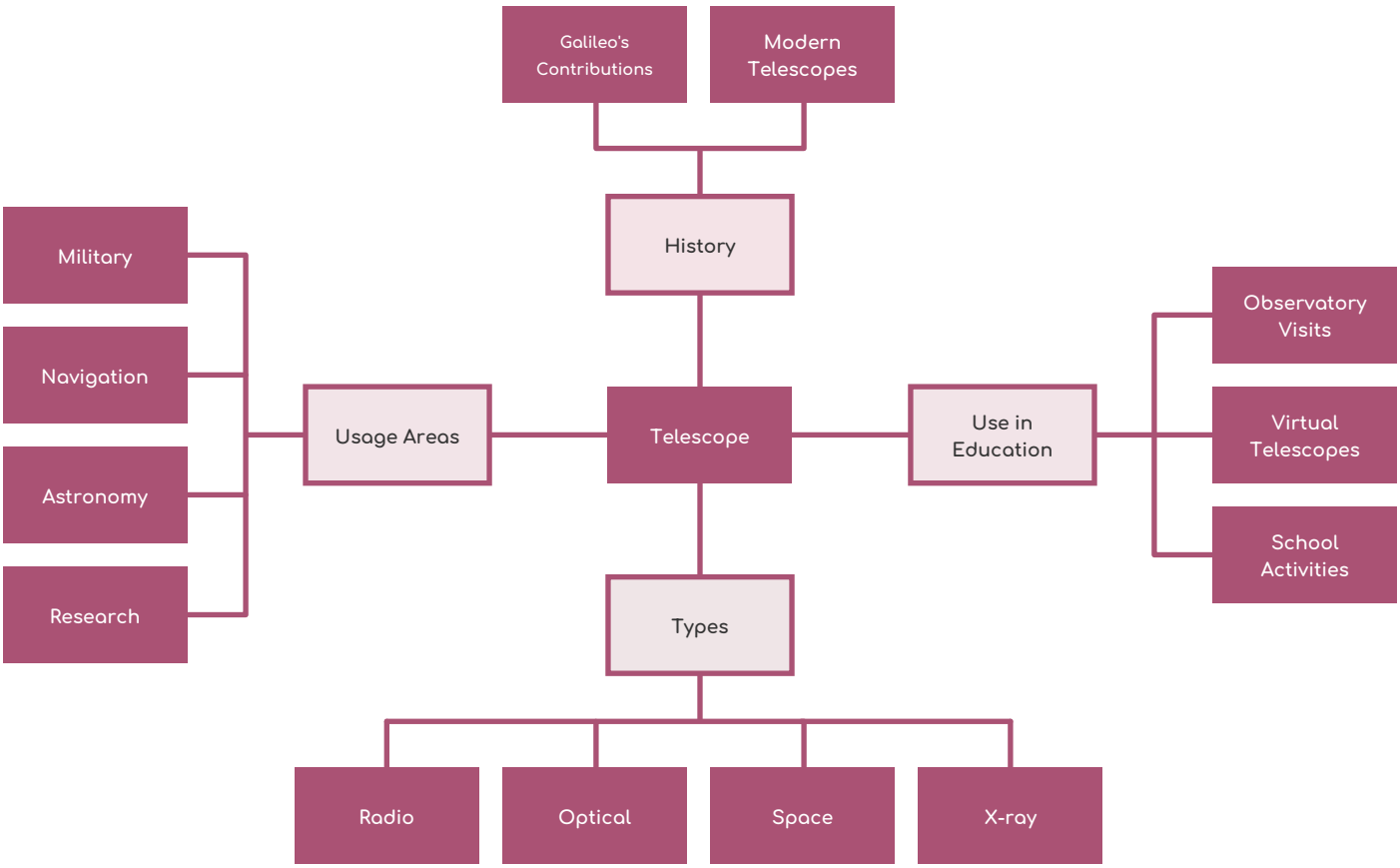
- Lesson planning and creating topic summaries
- Helping students better understand concepts
- Project and idea development processes
- As an effective note-taking method when preparing for exams

After the teacher provides application notes, they are asked to create mind maps following the steps below. During this process, the instructor asks questions to help them create mind maps, shows an example, and asks them to create them within this framework.

Questions:

- What is the place of telescopes in scientific discoveries?
- What types of telescopes are used for what purposes?
- How can telescopes be used effectively in the educational process?

Example visual presentation related to the steps of mind map preparation:



Teachers are asked to create mind maps in groups (2-3 people) using the steps below. Teachers are asked to share their mind maps with the class. At this point, an evaluation is carried out in the classroom.

1. The main concept is identified (e.g., 'Telescopes').
2. Subheadings related to the main concept (history, types, areas of use, use in education, etc.) are identified.
3. Details related to the subheadings are added, and the concepts are linked.
4. The mind map is prepared for presentation with visual elements.

Apply:

The teacher conducts an activity on telescope technology and astronomical observations with the teachers. The steps of the activity are as follows:

1. Teachers are divided into small groups (2-3 people), and each group is given research texts. (For example; https://bilimgenc.tubitak.gov.tr/makale/james-webb-uzay-teleskobunun-diger-uzay-teleskoplarindan-farki-ne ; https://services.tubitak.gov.tr/edergi/yazi.pdf;jsessionid=wodTc1mw4adsRDAVwsX3zjpl?dergiKodu=4&cilt=42&sayi=636&sayfa=88&yaziid=27991 ; https://dergipark.org.tr/tr/download/article-file/608824)
2. Groups analyze the technological development of the telescopes provided in the links above, different types of telescopes, and the effect of light pollution on observations.
3. Each group prepares a short presentation containing their findings and conclusions.
4. Following these presentations, the teacher provides teachers with information on how telescopes can be used more effectively in education:

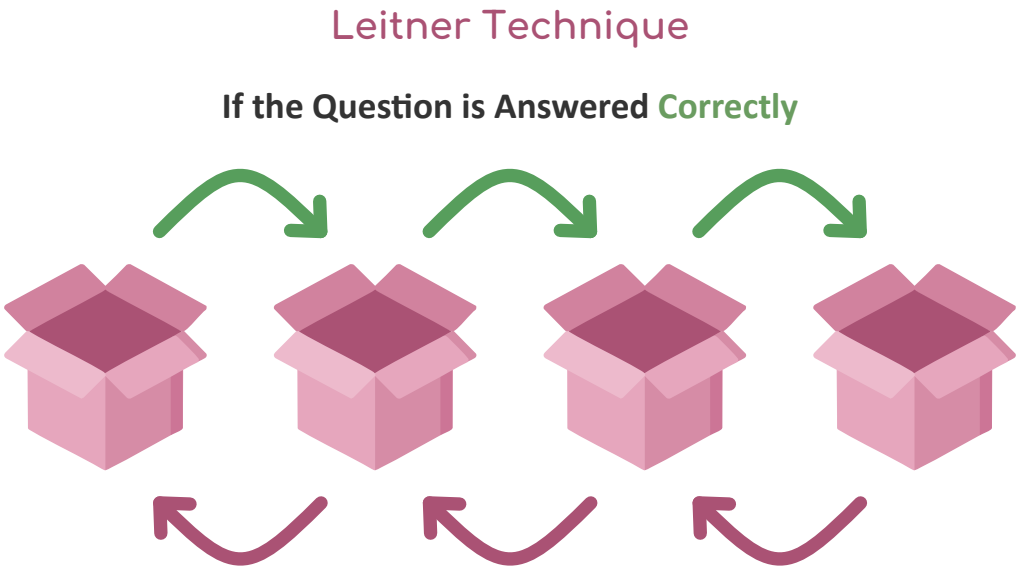
- Materials to be used to increase the use of telescopes in lessons: Students can be provided with telescope construction kits, augmented reality applications, and virtual telescope simulations.
- Students can carry out experimental activities using telescopes: Students can construct simple telescope models, conduct experiments to demonstrate the effects of light pollution, and organize remote observation activities.
- Observatory visits and virtual telescope applications: Physical observatory visits can be organized, or virtual telescope platforms provided by organizations such as NASA and ESA can be used in lessons.

5. The teacher discusses with teachers how they can improve telescope use after the presentations and information provided.

Evaluation:

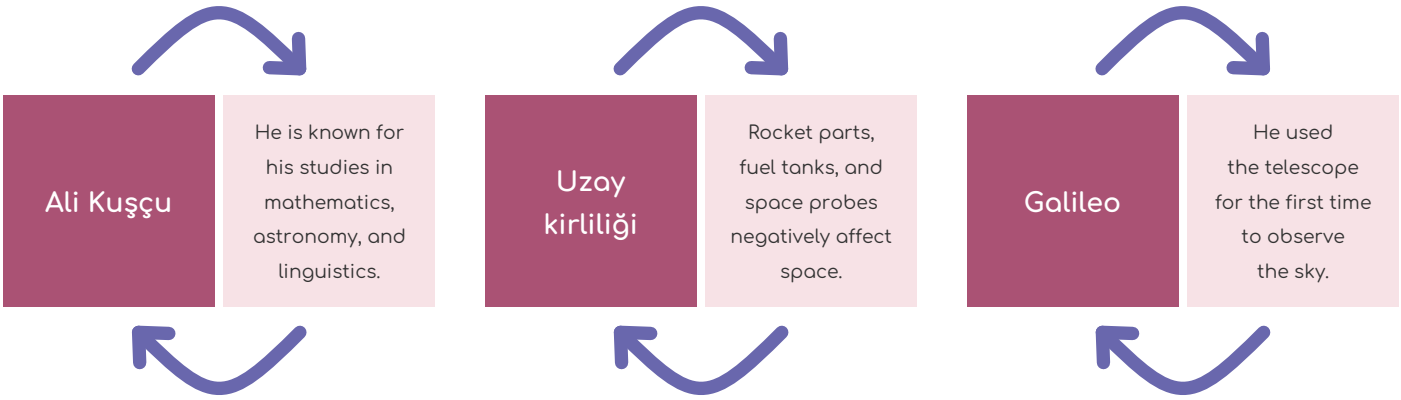
The teacher introduces the Leitner box method to teachers and explains it in detail:

- The Leitner box is a repetition method that helps learn concepts more permanently. A learning system enables information to be repeated regularly and effectively. It is particularly useful for topics that require memorization (learning words, formulas, definitions, etc.).
- Teachers are shown a visual representation of the Leitner Box.



- The teacher explains how to make and use the Leitner Box. At this point, teachers are shown a medium-sized box and concept cards. It is noted that the concept is written on the front of the concept cards, while the explanation is on the back. The box is divided into at least five sections, each representing a different learning level. All concept cards are initially placed in Section 1. When the answer to a concept card's question is provided, it moves to the next compartment; if the answer is incorrect, the card remains in its current section. Once a concept card reaches the 5th compartment, the information has been learned.

The following example concept cards are shown to teachers:



- After providing the necessary explanations, teachers are asked to create concept cards. The front of the concept cards should display the keyword, while the back should include the definition.
- Teachers arrange their prepared cards into sections 1 to 5 based on learning levels. If a card is answered correctly, it advances to the next compartment; if answered incorrectly, it returns to the beginning. A card that reaches the last compartment is deemed learned. This concludes the Leitner box activity.
- The teacher then engages with the educators on how this method can be integrated into the learning process for scientific concepts. The following questions are presented to the teachers:
    - Which concepts in astronomy can be taught using the Leitner box?
    - How can the Leitner box activity be implemented with students?
    - What are the long-term effects of this method on student learning processes?
- Finally, the teacher assesses the method and recommends ways teachers can adapt this strategy to the classroom environment.

After the Leitner box activity, the trainer facilitates two additional activities.

First Activity:

1. Teachers are divided into two groups.
2. One group is named 'Astronomy Education Advocates,' while the other is named 'Education Policy Developers.'
3. The 'Astronomy Education Advocates' are preparing a proposal report that defends the importance of telescopes in science education and the skills they impart students.
4. The 'Education Policy Developers' critically assessed the need for astronomy and the use of telescopes in the education curriculum.
5. The groups present their reports and conduct mutual evaluations.

Second Activity: An analytical study titled 'Astronomers and Their Contributions with Scientific Data' is conducted.

1. Teachers are divided into four groups.
2. Each group gathers information about a different astronomer from scientific sources and analyzes the impact of their work on the educational process.
3. The groups create an interactive presentation using the data they collected.
4. During the presentations, teachers discuss how the contributions of their chosen astronomer can be integrated into their educational programs.
5. All groups participated in a joint evaluation of how scientists' contributions can be more effectively used in education.

Objective 2: Apply effective study skills in a learning process.

Unit: F.7.1. The Solar System and Beyond / Earth and the Universe

Learning Outcome:

F.7.1.2. Beyond the Solar System: Celestial Objects

F.7.1.2.1. Recognises the process of star formation.

a. The concept of nebulae is introduced.

b. Examples of nebulae are given.

c. The concept of black holes is mentioned.

F.7.1.2.2. Explains the concept of stars.

a. Star types are mentioned.

b. Constellations, which are groups of stars seen from Earth and have names, are mentioned.

c. The distances between celestial bodies are mentioned as light years.

Duration: 40 min.

Learning Strategy: Cornell Technique

Materials: Paper, pen, cardboard, scientific text.

METHOD

Draw/Write:

The teacher conducts a visual activity to raise awareness among teachers about star formation and constellations. The trainer provides teachers with a large black cardboard (A0-A1 size) or a board on which they can draw. Then, he/she gives the following instructions:

1. Individual Thinking: Teachers are asked to imagine what children might see and how they might interpret the night sky when observing it.
2. Experience Sharing: The trainer asks teachers to share how they have addressed this topic with their students.
3. Visualization: Teachers draw the images students create based on their observations of the sky on cardboard. The aim is to model how students perceive constellations and star formation processes.

4. Presentation and Discussion: Teachers present their drawings and explanations to the class. The trainer guides teachers throughout this process, encouraging them to focus on the following questions:

- How can you increase students' interest in stars and constellations?
- How can sky observation activities be integrated into your lessons?
- How can you convey stars' scientific and cultural significance to your students?

Apply:

The teacher conducts an activity integrating the star formation process and the Cornell Note-Taking Technique for teachers. In this context, the Cornell Note-Taking Technique is explained first:

Application notes for teachers: Cornell Note-Taking Technique

'The Cornell Note-Taking Technique is an effective note-taking method developed in the 1950s by Walter Pauk, a professor at Cornell University. This technique provides a systematic framework for organizing, understanding, and easily reviewing information. The Cornell method helps students use their notes more efficiently and remember information for longer periods.

Benefits of the Cornell Note-Taking Technique:

- It allows information to be stored in an organized manner.
- It facilitates learning and understanding.
- It enables quick review and repetition.
- It encourages active learning.

Steps of the Cornell Note-Taking Technique:

1. Page Layout: Students are asked to divide the paper they will use for notes into four sections:
    - Top Section: The title is written.
    - Left Section: Reserved for keywords or short questions.
    - Right Section: Detailed notes taken during the lesson or video are written.
    - Bottom Section: A summary of the notes is made.

A template image is shown to teachers:

Cornel Technique Worksheet

Title	Meeting Date Other Dates
Keywords	Detailed Explanations
Summary	

2. Information Gathering: The trainer provides teachers with a scientific text on star formation and nebulae (e.g., https://e-dergi. tubitak.gov.tr/edergi/yazi.pdf;jsessionid=fyE+QN-J0hacI15IuY46iTs4D?dergiKodu=8&cilt=26&sayi=304&sayfa=18&yil=2023&ay=4&-yaziid=47801). During this process, the information provided in the text given by the instructor is recorded using the Cornell Note-Taking Technique.

3. Review and Summary: Teachers are asked to review the notes they have taken, add keywords to the left side, and write a summary in the lower section.

4. Sharing: Teachers share their notes and discuss any missing or incorrect information.

Activity:

Teachers form groups of 2-3. Each group selects material and prepares a Cornell note-taking template for their students using the Cornell Note-Taking Technique.

- Teachers plan how to conduct the note-taking process with their students, focusing on a specific astronomy topic (e.g., types of stars).
- The groups share their activities, and the trainer provides feedback.

Evaluation:

The teacher asks teachers questions about how constellations can be used in education and gives suggestions after each answer:

1. How can constellations help students develop scientific thinking skills?
    - Teacher suggestions: Encourage observation skills, understanding of stars' scientific and historical context, and ask questions that challenge problem-solving and inference skills.
2. How can you create an interdisciplinary lesson plan using constellations in a historical context?
    - Teacher suggestions: Lesson activities combining history, mythology, and astronomy can be prepared. The star maps of ancient civilizations can be compared with modern astronomy. Connections can be made between literature, art lessons, and astronomy.
3. How can you integrate night observations and virtual astronomy apps into lessons?
    - Teacher suggestions: Mobile apps and virtual telescopes can be used in lessons. Students can gain real-life experience through night observation events held at school.

Teachers' responses are discussed in class, and the activity begins

Activity: ’Constellation Story’

1. Teachers are asked to design their own imaginary constellations based on mythological stories about constellations and create a scientific story about them.
2. The stories created by teachers are discussed in class, and the most creative stories are evaluated.

Objective 3: Apply effective study skills in a learning process.

Unit: F.7.3. Force and Energy / Physical Events

Learning Outcome:

F.7.3.1. Relationship between Mass and Weight

F.7.3.1.1. Calls the gravitational force acting on mass 'weight.'

a. Emphasise that weight is a force.

b. Measure weight using a dynamometer.

F.7.3.1.2. Compare the concepts of mass and weight.

Duration: 40 min.

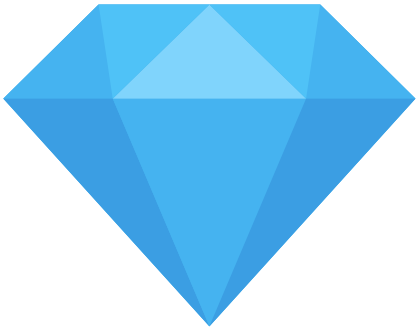
Learning Strategy: Pomodoro technique

Materials: Dynamometer, scale.

METHOD

Draw/Write:

The trainer conducts a visual activity for teachers on how to address the concepts of mass and weight in lessons. On the board, the trainer draws a diamond and a tennis ball.



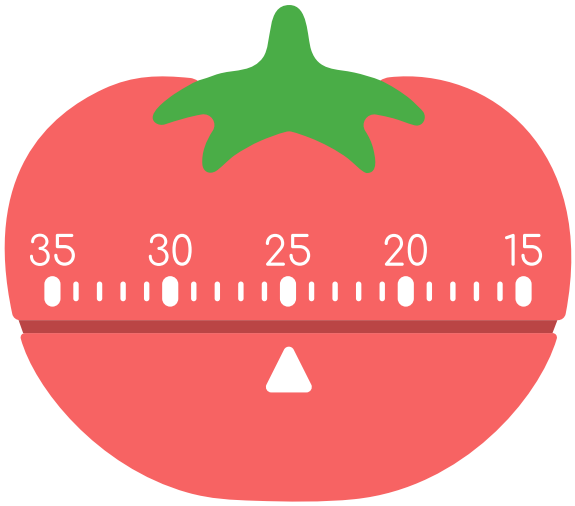
Then, give the following instructions:

1. Comparison of the diamond and tennis ball: Ask the teachers to compare the differences between these two objects in weight and mass and make predictions.
2. Measurement Experiment: The instructor brings a dynamometer and a scale to the classroom and asks the students to find objects with different masses, such as diamonds and tennis balls, and measure them. While measuring mass with the scale, the teachers also determine the objects' weights with the dynamometer.

3. Comparison of Results: The measurement values are written on the board, and the difference between mass and weight is observed experimentally. The teacher makes the following explanations during this process:
    - Mass is constant, but weight is variable.
    - Weight is obtained by multiplying the mass by gravity.
    - If gravity changes, weight changes, but mass remains constant.
4. Conclusion: Teachers are asked to discuss with their students how they can explain this difference and how they can address it in their own lessons.

Apply:

Teachers are shown a Pomodoro timer and asked, 'What do you think this can be used for?' After the teachers' answers, the Pomodoro technique is explained.



Application notes for teachers: The Pomodoro Technique

The Pomodoro Technique is a time management method developed in the 1980s by Francesco Cirillo. The technique aims to increase focus by using short work periods and short breaks to make the work process more efficient.

The word 'Pomodoro' means 'tomato' in Italian. The technique takes its name from the tomato-shaped kitchen timer Cirillo used during his student years.

This method offers an effective solution, especially for individuals who have difficulty sustaining their attention for long periods of time. It reduces mental fatigue by breaking down the work process into smaller parts and makes learning more effective.

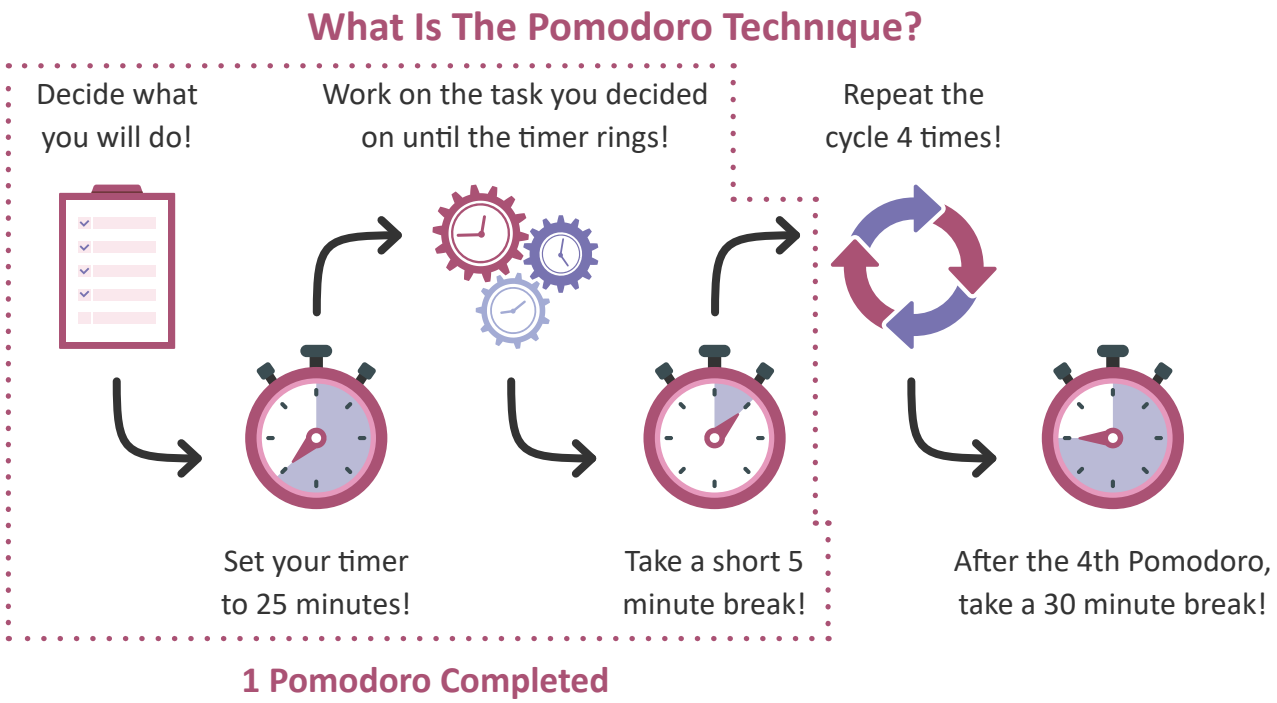
Steps to Apply the Pomodoro Technique

1. Define the Task
    - Clearly define the task to be completed.
    - Break down large tasks into smaller, manageable parts.
2. Set the Timer to 25 Minutes
    - Start a 25-minute focused work session (1 Pomodoro).
    - During this time, stay completely focused on the task and avoid distractions.
3. Start Working
    - Focus your attention solely on the task at hand.
    - Continue working uninterrupted, avoiding external distractions.
4. Take a 5-Minute Break
    - After 25 minutes of work, take a 5-minute break.
    - During this time, relax and let your mind rest.
5. Take a Long Break After 4 Pomodoros
    - After completing four Pomodoros, take a 15-30 minute break.
    - This long break helps your brain recharge and process information more effectively.
6. Review and Daily Evaluation
    - Record how many Pomodoros you completed throughout the day.
    - Review your work process and evaluate your productivity.

Benefits of the Pomodoro Technique:

- Increases attention span and enhances focus.
- Improves time management and encourages productive work.
- Balances work and rest periods to reduce mental fatigue.
- It makes large and complex tasks more manageable.

After these explanations, the trainer asks the teachers to do a Pomodoro Technique activity:



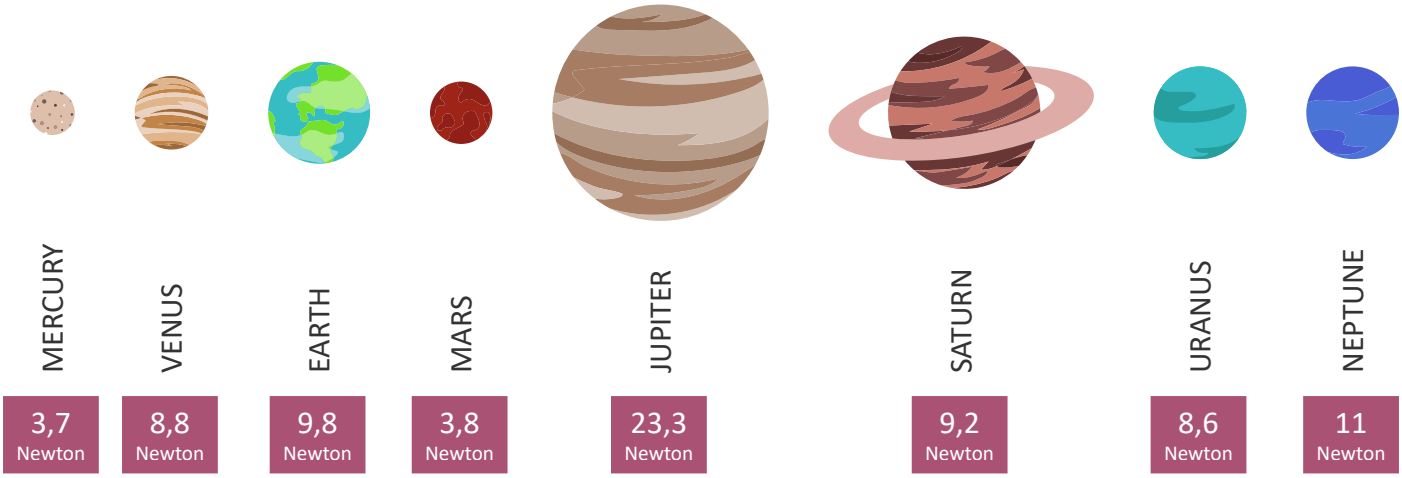
1. Goal Setting: The teacher selects four concepts they want to teach their students. For example:
   - The difference between mass and weight
   - Weight is variable, mass is constant
   - The effect of gravity on weight
   - The change in weight on different planets
2. 25-Minute Work Session: The trainer starts a timer and asks teachers to work individually on their selected first concept. This period is called a pomodoro. You may use your resources during this time.
3. 5-Minute Break: Teachers take a short break to rest their minds. They may take a short walk, drink water, or eat a snack.
4. 4 Cycle Completion: The exact process is applied to 4 different concepts.
5. Feedback and Discussion: Teachers discuss how the Pomodoro Technique can benefit their students and prepare a plan for applying it in their lessons.

Evaluation:

The trainer asks teachers to conduct an activity that measures how mass and weight can be taught more effectively.

Activity: Interplanetary Mass and Weight Simulation

1. Context: The trainer explains to teachers that the force of gravity is different on different planets. The following image illustrates this point.



1. Measurement and Comparison: Ask teachers to calculate the weight of an object in the classroom on Earth and on the Moon.
    - The weight of a 1 kg object on Earth ≈ 9.8 N
    - The weight of a 1 kg object on the Moon ≈ 1.6 N
2. Calculating Their Weight: Teachers calculate students' weights on different planets based on their mass and discuss this in class.
3. Discussion Activity: Think, Match, Share

Think (Individual Work - 2-3 Minutes)

- Teachers think individually about the following questions and take short notes:
    - If we lived on different planets, what changes would we notice daily?
    - How could the variability of weight affect athletes' performance?
    - How would weight changes create an engineering problem for building structures on different planets?

Match (Small Group Discussion - 5-7 minutes)

- Teachers form pairs and share their thoughts.
- Group members can develop their ideas by listening to different perspectives.
- The group identifies common ideas and writes them down.

Share (Large Group Sharing with the Class - 5-10 minutes)

- Each group shares a summary of their discussion with the class.
- Comparisons are made with the views of other groups, and a broad discussion environment is created among teachers.
- At the end of the discussion, teachers briefly evaluate how the Think, Pair, Share Technique works and how they can use it in their lessons.

1. Practical Lesson Plan: As a result of the discussion, teachers are asked to determine how they can explain the concept of interplanetary weight change to their students through an activity.

2. Developing Recommendations for the Class: Teachers prepare and present a lesson plan for implementing this activity with their students. The trainer provides feedback on the recommendations developed by the groups.

Objective 4: Experience proactive ways of working

Unit: F.7.3. Force and Energy / Physical Events

Learning Outcome:

F.7.3.2. Relationship between Force, Work, and Energy

F.7.3.2.2. Relate energy to the concept of work and classify it as kinetic and potential energy.

a. Potential energy is classified as gravitational potential energy and elastic potential energy.

b. It is stated that potential energy depends on mass and height, while kinetic energy depends on mass and speed.

c. Mathematical equations are not included.

Duration: 40 min.

Learning Strategy: Two slow, one fast

Materials: Toy car, spring, ball, ruler, wedge, paper, pen.

METHOD

Draw/Write:

The trainer discusses how teachers can teach kinetic and potential energy:

1. Examples from daily life should be given to explain energy conversion to students. For example:
   - Experience-based explanation: When students feel the energy they expend while climbing stairs, they can understand that it is converted into potential energy.
   - Visual Support: Show students images of a cyclist, swing, or skateboard and discuss kinetic and potential energy changes.
   - Analogy: Ask students to consider the difference between a full and empty battery. Explain that a full battery has potential energy.
2. Practical activities should be planned to help students recognize different types of energy. For example:
   - Motion Experiment: Students drop the ball from different heights in the classroom and observe how far it rolls.
   - Handmade Model: Students can analyze energy conversion by making a simple spring mechanism and compressing and releasing it.

3. Experiments demonstrating energy conversion should be conducted with students. For example:
    - Toy Car Experiment: The movement distances of cars on different slopes are measured to observe energy conversion.
    - Pendulum Experiment: A weight attached to a string is released from different heights to examine the conversion of potential and kinetic energy.
4. Group work and discussions should be encouraged to reinforce students' understanding of the concepts. For example:
    - Concept Map: Groups create concept maps showing kinetic and potential energy relationships.
    - Scenario Activity: Students are asked to engage in thinking activities like, “Imagine you are living on the Moon. How would energy transformations change?”

The trainer then asks the teachers the following questions:

- What happens when we push this toy car?
- What happens when we lift this ball up and then let it go?
- What happens when we squeeze this spring and then release it?

Teachers are asked to explain these situations and draw schematic diagrams of these events on the board.

The instructor explains the activities that can be done with the drawings. For example:

- Predict and Test: An activity where students predict energy conversion by looking at the drawings and then verify their predictions with experiments.
- Drawing Explanation: Students examine the drawings and explain what type of energy is involved at each stage.
- Fill in the Blanks: Students are given incomplete energy conversion diagrams and asked to complete them.

Apply:

Experiment Design Activity:

The trainer asks teachers to design an energy conversion experiment. Each group (2-3 people) plans how they can develop a lesson activity for their students by implementing the specified experiment stages.

Experiment Topic: Conversion of potential and kinetic energy.

Experiment Steps:

1. Selection of Experiment Materials: Teachers are asked to design an experiment using materials such as toy cars, balls, springs, rulers, and wedges to observe energy conversion.
2. Hypothesis Formation: Teachers formulate hypotheses such as 'Does potential energy increase as height increases?' or 'Does kinetic energy increase as force increases?'
3. Experiment Implementation: Teachers set up an apparatus to test their hypotheses.
4. Data Collection: Measurements are taken and the results are recorded.
5. Comparison of Results: They analyse energy changes at different heights, forces, or degrees of flexibility.
6. Writing the Experiment Report: Teachers plan how to prepare a worksheet for students and present their ideas to each other.

After the experiment is completed, groups evaluate each other's experiments and provide feedback.

Evaluation:

Application notes for teachers: Two Slow, One Fast Strategy

The Two Slow, One Fast Strategy explains to teachers how they can use this strategy: 'This strategy will show us how we can work more effectively in our lessons to better understand and remember a topic. The 'Two Slow' part means that we should first work on a topic twice, calmly and carefully, to understand it. Students learn the details by working on the topic slowly twice. This is important for learning by digesting the topic. In the first reading, they recognize new information and get a general idea. In the second reading, they focus on the details and try to understand the key points of the information. The 'One Fast' part is the stage where the information is reviewed and tested. In this step, what has been learned is quickly reviewed to check how much of it has been remembered. This helps both to reinforce the topic and to identify any gaps in understanding.

2 + 2	17 x 24
Fast Thinking	**Slow Thinking**

Fast thinking: The mind works very quickly, effortlessly and automatically.

Slow thinking: This requires conscious mental activity. Activities are generally related to objective experiences.

After the explanation, move on to the activity:

1. Slow Step: Teachers are asked: 'How would you explain the energy you use to lift a ball? How does potential energy increase when you lift an object?'
    - Teachers are asked to answer this question individually for 10 minutes.
2. Slow Step: The instructor asks, 'How does the energy change in a system when you compress a spring? How does potential energy convert to kinetic energy when the spring is released?'
    - Teachers are asked to answer this question individually for 10 minutes and share their answers with the class.
3. Fast Step: The instructor presents three examples from everyday life to the teachers. Examples:
    - Energy changes experienced by a cyclist going uphill and downhill
    - Energy transformations experienced by a person sliding down a water slide from the top
    - How potential and kinetic energy change when you kick a football

- Teachers are asked to select one example and provide a quick explanation in terms of energy transformations.
- They are given 5 minutes to respond.

After the activity:

Lesson Plan Development: The trainer asks teachers to design a classroom activity on energy transformations that they can use with their students. Teachers are divided into groups of 2-3. Groups share their lesson plans and receive feedback.

Objective 5: To develop independent work skills.

Unit: F.7.3. Force and Energy / Physical Events

Learning Outcome:

F.7.3.3. Energy Conversions

F.7.3.3.2. Explains the effect of friction force on kinetic energy with examples.

a. Friction surfaces, air resistance, and water resistance are considered when illustrating the effect of friction force on kinetic energy.

b. A simple experiment demonstrates that friction surfaces heat up, emphasizing that kinetic energy is converted into heat energy.

Duration: 40 min.

Learning Strategy: Review questionnaire

Materials: Paper, pen, cards, toy car, surfaces covered with different materials (sandpaper, carpet, smooth plastic), balls, thermometer, review questionnaire.

METHOD

Draw/Write:

1. The trainer offers guidance to teachers on teaching the relationship between friction force and kinetic energy: Examples from daily life should be given to students. For example;
   - A child is asked to share their experience to understand why they stop when they suddenly break while riding a bicycle.
   - A discussion is initiated on why the patterns on the sports shoe soles prevent slipping.
   - They are asked to question why heat is generated when they rub their hands together quickly.
2. Students should be given practical activities. For example:
   - Schematic Drawing and Analysis: Students draw a diagram showing how the energy of a vehicle changes as it moves on different surfaces.
   - Experienced Discovery: Students are encouraged to feel the effect of friction by rubbing their hands or sliding quickly across a carpet.

3. Simple experiments should be conducted to demonstrate energy conversions. For example:
    - Movement experiment on different surfaces: Students push toy cars on smooth and rough surfaces and measure how far they travel.
    - Heat energy conversion experiment: Students observe heat generation by rubbing their hands or quickly sliding an object over a surface.
4. Group work should be encouraged to reinforce students' understanding of the concepts. For example:
    - Concept Map: A concept map is created to illustrate the effects of friction force.
    - Problem-solving task: Work is done on the question, 'How can you increase friction on a snowy road to ensure safety?'

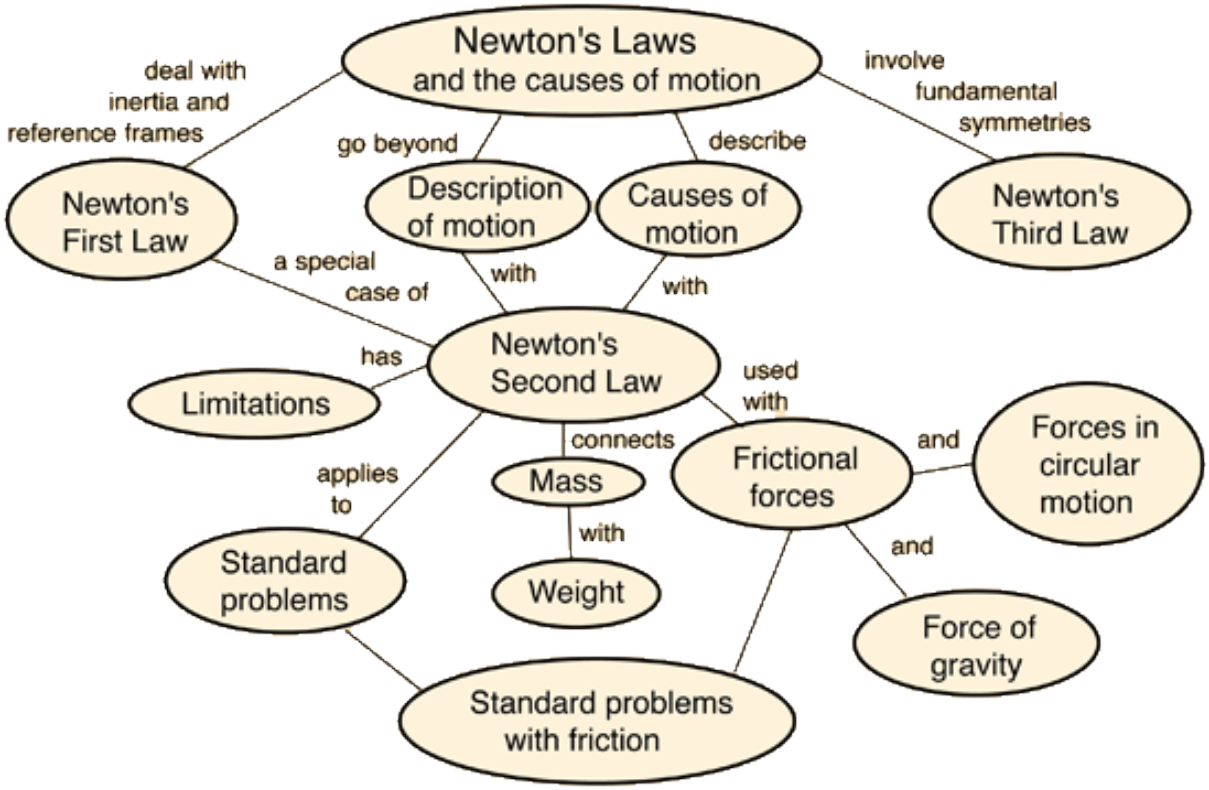
The trainer first provides information about concept maps to the teachers.

Application notes for teachers: Concept map

'A concept map is a teaching tool that visualises information in a hierarchical order, clarifies the relationships between concepts, and supports meaningful learning. Concept maps help learners organise, remember, and connect new information. Concept maps can be used in different educational processes for the following purposes:

1. Assessing Prior Knowledge:
    - Can be used to determine students' existing knowledge about a topic.
    - Serves as a brainstorming tool before learning.
2. Use During the Learning Process:
    - Clarifies the relationships between topics.
    - Ensures a better understanding of concepts.
    - Encourages critical thinking.
3. Use After Learning:
    - Helps students review and summarise what they have learned.
    - Increases the retention of learning.

Teachers are shown an example of a concept map:



Nave, C. R. (t.y.). Newton's Laws. HyperPhysics, Georgia State University

After the explanations, teachers are asked to do a concept map exercise. Teachers are divided into groups (2-3 people) and prepare a concept map on the concepts of 'Friction Force,' 'Kinetic Energy,' and 'Energy Conversion.' Each group creates a concept map by following the steps below:

1. Identify the Main Concept: The concept of 'Energy Conversion' is placed at the center of the map.
2. Identify Sub-Concepts: The concept map now includes concepts such as Kinetic Energy, Potential Energy, Friction Force, and Heat Energy.
3. Draw Connections: The relationships between concepts are indicated with arrows (e.g., 'Friction Force → Conversion to Heat Energy').
4. Add Explanations: Support the connections with short explanations of how they work.
5. Presentation and Discussion: Groups present their maps and discuss any missing or areas for improvement.

Apply:

The trainer asks teachers to create an experiment that enables them to observe the relationship between friction force and kinetic energy. Teachers are divided into groups of 2 to 3. Groups plan how they can develop a lesson activity for their students. The subject of the experiment: The effect of friction force on kinetic energy and its conversion to heat energy.

Experiment Steps:

1. Selection of Experiment Materials: Groups design experiments using toy cars, different surfaces (e.g., sandpaper, carpet, smooth plastic), thermometers, and balls.
2. Hypothesis Formation: Hypotheses such as 'Does kinetic energy loss occur faster as friction force increases?' are determined.
3. Conducting the Experiment: Groups move the toy car on different surfaces with the same force and observe how many seconds it takes to stop.
4. Data Collection: The temperature of the surfaces is measured with a thermometer, and the effect of friction on heat is recorded.
5. Comparing Results: The time it takes to stop quickly on different surfaces and the increase in temperature are evaluated.
6. Writing the Experiment Report: Teachers plan how to create an experiment form for students and share their ideas.

After the experiment, groups evaluate each other's experiments and provide feedback.

Evaluation:

Application notes for teachers: Review Questionnaire

The Review Survey is a tool for evaluating and improving one's own learning processes. It helps teachers analyse their independent study habits, review their learning strategies, and provide their students with more effective study methods. The purpose of the survey is to raise teachers' awareness of their own learning processes and guide them in transferring this awareness to their students. The survey helps teachers evaluate their own independent learning processes and enables them to identify how they can offer their students more effective working methods.

After the explanations, teachers are presented with a sample Review Survey:

Review Questionnaire

1. How many hours do you spend working independently on your research? (….. hours)
2. What types of activities do you engage in? Use the table below to answer the question:

		Always	Sometimes	Never
I read the notes taken in class.	C			
I use the resources on the school's digital learning platform (EBA).	C			
I use the textbook.	C			
I learn by creating diagrams.	C			
I study by highlighting my notes with coloured pens.	C			
I study by preparing flashcards for myself.	C			
I study by creating a poster of what I have learned.	C			
I learn by trying to answer exam questions within a certain time frame.	S			
I study by reading sample answers.	S			
I use past exam questions and think about possible answers.	S			
I prefer to work in groups with my friends.	F			
I compare sample answers with my own work.	F			
I create my own exam questions.	F			
I learn by discussing with the teacher one-on-one.	F			

*C: Content Techniques, B:Skill Techniques, F:Feedback techiques

3. You may write any additional work you wish to include beyond what is listed above:

		Always	Sometimes	Never

4. Write a brief description of what you do when you do not understand a topic (e.g., try again, read textbooks, check the school's digital learning environment, talk to the teacher, talk to other students, etc.).

After teachers review the survey, they are asked the following questions:

1. Which student is more successful? (Is the time spent important, or is the quality of the activity done in a short time more important?)

The answer to the question is discussed in the classroom, and teachers are asked the following questions:

1. How much time did you spend on independent work last week?
2. What techniques did you use in your learning process? (Take notes, repeat, draw diagrams, etc.)
3. What approach do you follow in teaching the subject?
4. How can you improve your learning process?
5. In which environment are you most productive while working? (Quiet room, library, group work, etc.)
6. Do you use a specific strategy when planning your work? (Prioritising, setting deadlines, etc.)
7. What methods do you use to reinforce what you have taught? (Summarising, teaching, testing, etc.)
8. How do you motivate yourself when working independently?
9. What additional resources do you use to help students better understand the topics?
10. What methods would you recommend to help students develop independent study skills?

After the questions are answered and discussed in class, the following activities are conducted:

Activity 1: Creating a Work Plan with Strategy Cards

Teachers form groups of two to three people. The groups draw cards containing work strategies that support independent learning. Each card includes a different work method (e.g., Pomodoro Technique, Cornell Note-Taking, Concept Map, Mind Map, Leitner Box, Two Slow, One Fast, Review Survey). The groups review the cards and create a short plan for using this method in class. Then, the groups present their suggestions to the class and receive feedback from other groups.

Activity 2: Gallery Walk

Teachers divide into groups of 2-3 and come up with solutions to the following problem:

- 'What measures can be taken to ensure vehicles can move safely on an icy road?'
- The groups then prepare their solution proposals through posters, infographics, or short presentations.

- The posters are displayed in the classroom, and a 'gallery walk' is held there. Other groups walk around, examine the posters, take notes, and provide feedback.
- Finally, each group evaluates the feedback received from other groups and updates their posters.

After the activities are completed, the 'Review Survey' above is distributed to teachers who act as students in the classroom. Teachers are asked to answer the questions individually as students. Once the teachers have completed the survey, the trainer collects it.

MODULE 5: THE POWER OF YET

Objective 1: Teachers will be able to give effective feedback and incorporate these critiques when creating personal development plans.

Activity Name: Feedback Using the Power of "Yet": Believing in Student Potential

Duration: 40 min.

Materials: Scenario feedback cards, video link, whiteboard.

METHOD

Watch-Do:

1. The teacher enters the classroom. Using the smart board (or a similar video playback device), they open the video at https://www.youtube.com/watch?v=E_6PskE3zfQ. Before starting the video, the instructor shares some information about the day's activity with the teachers. The details to be shared are listed under the "Practice" heading.
2. After watching the video with the students, the teacher hosts a question-and-answer session to ensure the main purpose of the video is clear. (The main goal of the video is not for students to give up when they receive feedback, but to understand the importance of continuing to improve by learning the concept of "yet")
3. Next, the instructor divides the students into groups of no more than five and distributes the necessary materials to each group.
4. The teacher uses encouraging phrases during this model development process, as listed under the "Explanation" heading. When giving feedback, the instructor should remember to emphasize the concept of "yet."
5. If a student makes a mistake, instead of doing it entirely for them, the instructor should guide the student on how to do it.

Explanation:

1. The teacher greets the teachers. While preparing to show the video, the teacher says:
    - "Today, we will discuss how the feedback you give to your students can affect their learning process. The concept of 'yet' is a powerful perspective that shows not where a student is in their learning journey, but where they can go. After discussing this video, we will begin our activity."

      https://www.youtube.com/watch?v=E_6PskE3zfQ

2. After watching the video, the teacher asks the following questions to ensure that the teachers have understood the main purpose of the video:

- "In your opinion, what does 'yet' change in this video?"
- "Why are the butterfly drawings valuable?"
- "How do you think feedback should be given?"

3. The session continues with this question:

Recall a piece of feedback you received from a colleague or a student. How did it affect you? Was this effect related only to the content of the feedback, or also to how it was delivered?

4. Participants share short examples, and the teacher summarizes these on the board.

5. The session then proceeds with role play using scenario cards.

6. Participants are divided into pairs.

7. Each group receives a scenario card. The card features the start of a teacher–student feedback dialogue.

Scenario 1 A teacher gives feedback to a student who says they answered a question incorrectly: *'It's normal for you to get this question wrong because you didn't understand the topic at all."*	Scenario 2 A teacher gives feedback to a student who doesn't ask enough questions: *"Asking so few questions is really not sufficient at all."*	Scenario 3 One teacher gives feedback to another about the exam they prepared: *"Having only 10 questions on the exam is too few; there should be at least 40 questions."*
Scenario 4 A teacher provides feedback to a student who earned the highest grade in the class but made a minor mistake: *"You already knew the answer to this question, so why did you make a mistake?"*	Scenario 5 The department head provides feedback to a teacher during a meeting: *"You are not fully successful in classroom management; you should control the class better."*	Scenario 6 A recent graduate teacher suggests a new idea to an experienced teacher and receives this feedback: *"You are a new teacher; you can't be as good as someone with experience."*

Task: Reflect on how the dialogue made you feel. Complete the dialogue in a way that is effective, growth-oriented, and incorporates the theme of "yet."

Sentence Patterns to Write on the Board:

- You haven't reached your target yet, but if you keep going, you can get there.
- You haven’t reached your desired level yet, but if you keep trying, you can get there.
- "Let’s figure out together what you can do at this step."
- "This isn’t a failure; it’s just a 'not yet'!"
- "You might not be able to do it on your own yet. Let’s try again together."

1. The instructor circulates around the class during the scenario, encouraging the use of these sentences if necessary.
    - Did the participant use growth-oriented language when giving feedback?
    - Was the concept of “yet” effectively integrated into the scenario?
    - Did the participant recognize the potential effects of feedback on the student?
2. Each group gives a short presentation or shares the essence of their dialogue with the class. The instructor guides the closing discussion with these questions:
    - "Which sentences would be more constructive for the student?"
    - "What kind of effect might this type of feedback have on the student?"
    - "How could you use the word 'yet' in your own classroom?"
    - Here is the main content of your text, translated and summarized in English:

Emphasis on Mindset Theory:

When students view feedback not as an ‘evaluation’ but as an opportunity to ‘grow,’ their willingness to learn increases. The word ‘yet' acts as a powerful key that fosters this courage.

Important Note: The assessment should focus on whether they structured the feedback in a growth-oriented, understanding, and motivating way, rather than just asking, "Did they give the right feedback?"

This activity aims to explain how teachers can effectively teach the concept of “yet” to their students, the language and expressions they use when giving feedback, and how their evaluation style can negatively affect students and even lead to disengagement from the lesson. Through this “incorrect feedback” activity, which teachers perform both in their professional lives and in their interactions with students, it is highlighted that not only is teaching students how to do things important for effective instruction, but also the approach taken when they make mistakes or need correction plays a significant role. The evaluation criterion should be whether teachers have achieved this targeted aspect by the end of the lesson.

MODULE 6: EFFECTIVE STUDY HABITS

Overall Aim: Individuals will be able to gain awareness of what constitutes effective study habits.

Activity Name: Habits Can Be Acquired

Learning Outcomes: Teachers will be able to explain what effective study habits are and that these habits can be acquired later on.

Duration: 40 min.

Materials: Smart board or projector, Appendix 2.

Preliminary Preparation: Make enough copies of Appendix 2 for the number of participants.

Process:

The table visuals provided in Appendix 1 are projected onto the board, and participants are asked which table they would prefer to work at. After collecting the responses, it is discussed that everyone's study environment can be different, and that an environment effective for one person may not be effective for another.

Furthermore, it is explained that there are certain essential rules for studying effectively, and the attached List of Effective Study Habits is distributed to the participants.

After giving teachers sufficient time to review the list, they are asked to pair up and discuss how suitable the items on the list are for themselves. After each pair discusses within themselves, they are instructed to join another pair to form groups of four, and to discuss the list in these groups.

Once enough time is provided, the entire group is brought together to discuss under what circumstances and for whom the recommendations on the list might be effective. If there are additional suggestions, these are also discussed. The facilitator writes the responses on the board and a common list of study habits is created for the group.

Teachers are then asked to evaluate whether there are any habits on the list that they do not currently practice. They discuss what might be preventing them from adopting these habits and whether they will attempt to implement them in the future. At this point, it is important for the group leader to emphasize that, if the conditions and motivation are adequate, teachers can acquire these habits from the list.

Teachers are then asked to practice one habit from the list, which they select, for one week. The activity is then concluded.

Notes to Practitioner: If desired, the facilitator may also show participants different images of tidy and untidy desks.

Appendix 1: Desk Visuals

Appendix 2: List of Effective Study Habits

List of Effective Study Habits	
1	Find an appropriate place to study.
2	Minimize distractions.
3	Take breaks.
4	Study in intervals.
5	Set learning goals for each study session.
6	Reward yourself.
7	Study in groups.
8	Solve questions/exercises.
9	Express topics in your own words.
10	Ask for help.
11	Do not neglect your self-care.

MODULE 7: SELF-REGULATIO

Overall Aim: At the end of the module, individuals will be able to gain awareness of self-control.

Activity Name: Stop, Get Ready, Go

Learning Outcomes: Teachers wil gain awareness of self-conrol.

Duration: 40 min.

Materials: Drawing paper (or flipchart), colored pencils, Appendix 1.

Preliminary Preparation: Make enough copies of Appendix 1 for the number of participants.

Process:

Teachers are informed that they will need to work in small groups to draw a classroom picture. Teachers are divided into groups of five. The group leader secretly selects one member from each group, either at the beginning or during the activity, and privately assigns them one of the following tasks:

- While drawing, continuously talk about unrelated topics to slow down the group.
- Sing loudly.
- Try to persuade group members to leave for tea/coffee breaks.

These tasks can be varied according to the group dynamic. The aim is to have a member who distracts the group in each team. Groups are given 10 minutes to complete their drawings. At the end of the time, one person from each group is asked to present the drawing. During the process, the group leader can ask the following questions:

- What was it like to work together as a group and create a single drawing?
- How did you decide what to draw?
- Were there any challenges you faced while making the drawing?

After all groups have shared, the group leader reveals that a member in each group was assigned to distract and discusses self-regulation and its importance with the following questions:

- Who managed to stay focused only on the task and resisted the distractions?
- How did you cope with the presence of a distractor in the group?

After the discussion, the group leader emphasizes the importance of self-regulation in completing a task on time. It is explained that self-regulation consists of three stages: planning, monitoring, and evaluation.

If any group followed these stages during the activity, their behavior is reinforced, and the session proceeds to the next activity.

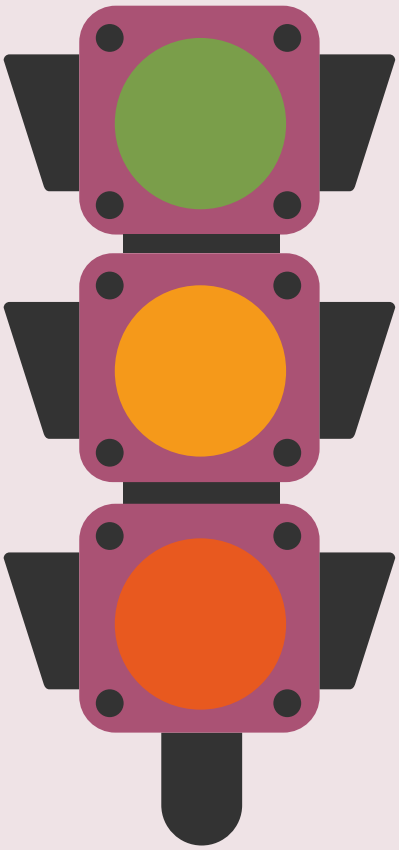
Teachers are told that self-regulation can be likened to following traffic lights as a metaphor, and each participant is given the prepared traffic light papers (Appendix 1). They are asked to review the form, think of a recent event, and write how they could have used self-regulation in that event. Once all teachers have completed the form, volunteers are invited to share their reflections. Similarities and differences between the responses are highlighted, and the activity is concluded.

Notes to Practitioner:

During the group drawing, there may be anger toward the distractor within the group. Therefore, facilitators should circulate among groups, and if tension becomes excessive in any group, the distractor should be asked to reduce their disruptive behavior.

The facilitator may use the following information for more detail about self-regulation: "Self-regulation is a process in which individuals set their own goals and try to regulate their thoughts, motivation, and behaviors, defined by their objectives and the circumstances around them. In self-regulation, it is important for individuals to set goals and develop various strategies to achieve them. Although the processes may seem complex, individuals exert effort to control and manage them."

Appendix 1:



PLAN:

MONITORING:

EVALUATION:

Think about a recent task you were given and needed to complete. Reflect on how you could accomplish this task by following the steps of self-regulation below, and write the appropriate behaviors on the corresponding parts of the traffic light:

Red – Stop – Planning: This is the stage where you set your goals, determine the steps to take, and manage your time in order to complete the task.

Yellow – Get Ready – Monitoring: At this stage, you begin to implement the strategy you selected during the planning phase.

Green – Go – Evaluation: After the task is completed, you evaluate yourself and the work thoroughly from all aspects.

Activity Name: Control Puzzle

Learning Outcomes: Participants will be able to explain what self-regulation skills are. Participants will explore ways to develop self-regulation skills

Duration: 25 min.

Materials: Appendix 2, board, board marker.

Preliminary Preparation: Make enough copies of Appendix 2 for the number of participants.

Process:

Teachers are given the puzzle in Appendix 2 and asked to find words related to self-regulation within the puzzle. After sufficient time is given, volunteers are invited to share the words they found, which are then written on the board. Any words not found by the participants are completed by the group leader.

The group leader discusses with participants the role of each word found in the puzzle for developing self-regulation skills. When discussing planning, monitoring, and evaluation, references are made to what was learned in the previous activity. The following information can help the group leader facilitate the discussion:

- Choice: The importance of giving individuals the option to choose among tasks.
- Making mistakes: Enabling individuals to learn from mistakes, discuss errors, and focus on what can be done to avoid repeating the same mistake.
- Support: The need for support or role models for those who have difficulty with self-regulation.
- Control: Similar to the evaluation stage, individuals checking their own tasks or steps.
- Peer: Creating opportunities for individuals to learn from and observe their peers.

While discussing self-regulation strategies, the following questions may be used to guide the discussion:

- How do you use this strategy at home or at work?
- Have you ever used this strategy before? Can you give an example?
- In your opinion, in which situations and for which types of people should this strategy be used? Do you possess these characteristics?

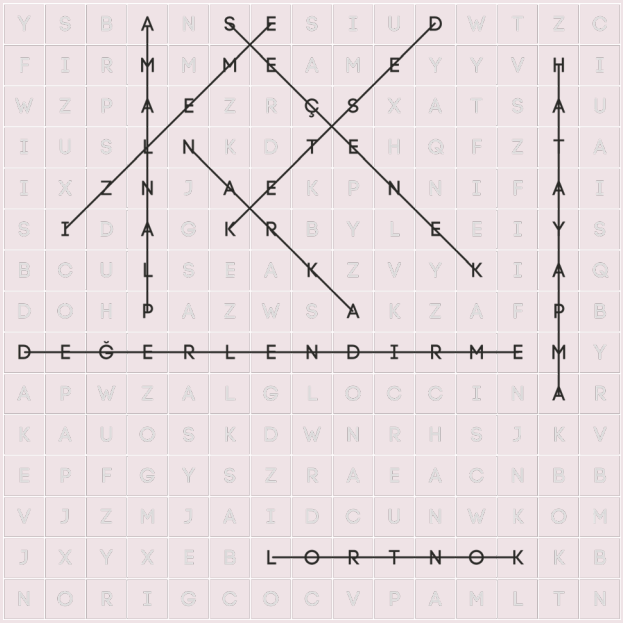
Notes to Practitioner: The words included in the puzzle are: planning, monitoring, evaluation, choice, making mistakes, support, control, peer.

Appendix 2: Control Puzzle

CONTROL PUZZLE

Y	S	B	A	N	S	E	S	I	U	D	W	T	Z	C
F	I	R	M	M	M	E	A	M	E	Y	Y	V	H	I
W	Z	P	A	E	Z	R	Ç	S	X	A	T	S	A	U
I	U	S	L	N	K	D	T	E	H	Q	F	Z	T	A
I	X	Z	N	J	A	E	K	P	N	N	I	F	A	I
S	I	D	A	G	K	R	B	Y	L	E	E	I	Y	S
B	C	U	L	S	E	A	K	Z	V	Y	K	I	A	Q
D	O	H	P	A	Z	W	S	A	K	Z	A	F	P	B
D	E	Ğ	E	R	L	E	N	D	I	R	M	E	M	Y
A	P	W	Z	A	L	G	L	O	C	C	I	N	A	R
K	A	U	O	S	K	D	W	N	R	H	S	J	K	V
E	P	F	G	Y	S	Z	R	A	E	A	C	N	B	B
V	J	Z	M	J	A	I	D	C	U	N	W	K	O	M
J	X	Y	X	E	B	L	O	R	T	N	O	K	K	B
N	O	R	I	G	C	O	C	V	P	A	M	L	T	N

CONTROL PUZZLE - ANSWER KEY



MODULE 8: SELF-ESTEEM

Overall Aim: By the end of this course, individuals will gain awareness of their strengths and areas for development.

Activity Name: Getting to Know Myself

Learning Outcomes: Students will be able to express their strengths and areas they need to improve.

Duration: 40 min.

Materials: Angel and Devil sheets.

Preliminary Preparation: Make enough copies of the Angel and Devil sheets for the number of participants.

Process:

Participants are asked to think of a teacher from their educational life who left a positive or negative impact. Then, from various objects brought into the classroom (e.g., pencil, eraser, paper, scissors, glue, test tube, etc.), they are asked to choose the one they believe best represents that teacher. Once all participants have made their selections, they are asked one by one to share which teacher they thought of and why they chose the object to represent them. Focus is placed on the positive and negative characteristics of these impactful teachers. The idea that a teacher can have both good and bad behaviors is emphasized.

Each participant is then given a drawing of a person with an angel on one shoulder and a devil on the other. They are asked to draw speech bubbles over both the angel and the devil. Then they are told: “Now imagine this person is you. Think about what the angel and devil inside you would say about your teaching. Write those thoughts in the speech bubbles.”

Once everyone has written their thoughts, volunteers are invited to share what their inner angel and devil have said. If there are particularly harsh inner criticisms, these are discussed in more detail.

Participants are then asked to answer the following questions based on what they wrote in the speech bubbles:

1. What kind of effect do the angel’s words have on me?
2. What kind of effect do the devil’s words have on me?
3. To what extent do the words of the angel and devil reflect my true self?

Participants are then asked, “If the angel and devil were to describe your characteristics, what would they say?”.

They are instructed to write their strengths on the angel side of the sheet and areas for improvement on the devil side.

Volunteers are encouraged to share, and the activity is concluded with an emphasis on the idea that every person has both strengths and areas for development. The following statement can be used to summarize:

“Every individual has both strengths and areas in need of development. What matters is to objectively assess ourselves, become aware of these traits, and consciously manage their impact on our lives. Discovering and effectively utilizing our strengths enhances our sense of achievement and satisfaction, while acknowledging and working on our developmental areas supports personal growth. Rather than striving for perfection, focusing on continuous self-improvement contributes to a more fulfilling and meaningful life on both individual and societal levels.”

Appendix 1: Angel–Devil Sheets

Activity Name: I'm Getting Stronger

Learning Outcomes: The teacher will believe that their qualities can be improved.

Duration: 30 min.

Materials: Angel and Devil sheets.

Process:

Begin by sharing with participants that the negative self-criticisms we direct at ourselves can sometimes affect us and hinder our ability to reach our full potential. Emphasize that everyone makes mistakes and that it's possible—and important—to love ourselves despite those mistakes.

Then, refer back to the drawings from the previous activity (with the angel and devil). Ask participants to create a mechanism that they can use to stop or eliminate the devil whenever they choose—and to illustrate this mechanism. (Participants may, for example, draw a curtain in front of the devil, create a magical wand to make it disappear, etc.)

Next, participants are asked to pair up in groups of two and discuss how they could use the mechanism they created in real-life situations. To facilitate this paired discussion, the following questions may be asked:

- What are the characteristics of my devil side?
- What can I do to prevent these traits from harming me?
- What is my plan to reduce the influence of my devil side from now on?

Once the pair discussions are completed, the group reconvenes for a whole-class discussion. The following guiding questions can be used:

- What strategies did you come up with to prevent the traits of your devil side from affecting your daily life?
- How did it feel to hear your partner's strategy? Was it similar or different to yours?
- What did you hear from your partner that you think could also work for you?
- What is your plan moving forward?

After hearing from the volunteer teachers, the activity is concluded.

Activity Name: I Am the Same, My Environment Is Different

Learning Outcomes: The teacher will become aware of how social comparison affects them.

Duration: 20 min.

Materials: The scale in appendix 1.

Preliminary Preparation: Make enough copies of Appendix 1 for each participant.

Process:

Distribute the items from the scale in Appendix 1 to the teachers and read the following instruction:

"As you know, we all compare ourselves with others from time to time and make certain evaluations. As a result of these evaluations, we form opinions about ourselves. You surely have some views about yourself as well. Please mark the circle next to the number that best reflects how you see yourself in comparison with others for each of the adjectives below."

Once the scale is completed, ask the teachers the following questions:

1. Looking at your overall answers, do you tend to be closer to the right or left column?
2. What was it like to form opinions about yourself by thinking about others?

After taking responses from volunteer teachers, emphasize that we all engage in social comparison and develop self-perceptions based on the environment we are in. Then pose the following two hypothetical questions:

1. Imagine you are one of five science teachers selected each year to study in a country where getting into university is extremely difficult and only 1% of the population can attend. How would you feel?
2. Imagine you are a science teacher in a country where university admission is very easy, and anyone can become a teacher without any entrance score. How would you feel?

Discuss the differences between the two scenarios and highlight that in both cases, the individual has not changed—they are still a science teacher with the same qualifications and training. What changes is the context.

Notes to Practitioner:

The scale used in this activity is adapted from:

Öksüz, E., & Malhan, S. (2004). Sosyal Karşılaştırma Ölçeğinin güvenilirlik ve geçerlilik analizi. Ulusal Aile Hekimliği Kongresi, Bursa.

Appendix 1: Social Comparison Scale

	Left Column	<==========>						Right Column
1	Inadequate	1	2	3	4	5	6	Competent/Superior
2	Clumsy	1	2	3	4	5	6	Skillful
3	Unsuccessful	1	2	3	4	5	6	Successful
4	Unlikable Person	1	2	3	4	5	6	Likable Person
5	Introverted	1	2	3	4	5	6	Extroverted
6	Lonely	1	2	3	4	5	6	Not Lonely
7	Excluded	1	2	3	4	5	6	Accepted
8	Impatient	1	2	3	4	5	6	Patient
9	Intolerant	1	2	3	4	5	6	Tolerant
10	Follower	1	2	3	4	5	6	Takes Initiative
11	Cowardly	1	2	3	4	5	6	Brave
12	Insecure	1	2	3	4	5	6	Self-Confident
13	Timid	1	2	3	4	5	6	Assertive
14	Disorganized	1	2	3	4	5	6	Organized
15	Passive	1	2	3	4	5	6	Active
16	Indecisive	1	2	3	4	5	6	Decisive
17	Unsympathetic	1	2	3	4	5	6	Sympathetic
18	Submissive	1	2	3	4	5	6	Assertive of Rights

Activity Name: Recognizing My Strengths and Struggles

Learning Outcomes: The teacher will become aware of their uniqueness.

Duration: 30 min.

Materials: Appendix 1, paper, pencil/pen.

Preliminary Preparation: Make enough copies of Appendix 1 for the number of participants.

Process:

Distribute the attached short stories (Appendix 1) to the teachers. Ask them to read the stories and then briefly discuss what they observed in the three different stories. Emphasize that each of the three individuals in the stories has different characteristics.

Then, ask the participants to write a short reflective text using the following three prompts:

1. My Strengths
    - Identify three areas where you feel strong.
    - How do these strengths contribute to your life?
2. Areas I Want to Improve
    - Write down three areas where you struggle or wish to improve.
    - What can you do to work on these areas?
3. What Makes Me Who I Am
    - What makes you different from others?
    - What is the quality you love most about yourself?

Once participants have completed their writing, ask for volunteers to share their stories with the group. Then conclude the activity.

Appendix 1: Stories

1. A Genius of Music, A Rookie in Daily Tasks: Cem

From a young age, Cem realized he had an extraordinary talent for music. He taught himself how to play the piano and even began composing music before enrolling in the conservatory. His compositions received international awards, and major orchestras performed his works. Music was like a native language to him.

However, Cem's everyday life skills were nowhere near the same level. He would forget to do simple household chores, miss bill deadlines, and frequently buy the wrong items when grocery shopping. While his friends joked that he had an "artist's mind," Cem often struggled because of these issues.

2. A Brilliant Speaker, A Struggling Listener: Elif

Elif was an admired public speaker. After graduating from university, she inspired thousands with her talks on leadership and personal development. Speaking in front of a crowd came as naturally to her as drinking water. She had a powerful presence and a charismatic way of speaking that captivated people.

But when it came to listening, everything changed for Elif. Her friends thought she was impatient and often interrupted others before they could finish their thoughts. Her struggle with listening sometimes made it difficult for her to truly understand others' emotions.

3. A Brilliant Mathematician, Shy in Social Settings: Yasin

Yasin was a genius who thrived in the magical world of numbers. Even as a child, he could solve complex math problems with ease. He became a mathematics professor at university, authored numerous academic articles, and produced groundbreaking work in his field. For Yasin, mathematics was clear, logical, and orderly.

But people were a different story. He found it difficult to engage in conversations in social settings and avoided expressing himself in groups. While he could deliver a successful lecture on stage at a conference, he was reluctant to join casual conversations with other academics during a coffee break.

MODULE 9: MOTIVATION

Overall Aim: By the end of the lesson, teachers will be able to develop awareness of different sources of motivation to become motivated.

Activity Name: Recognizing Motivation

Learning Outcomes: Teachers will be able to identify the concept and characteristics of motivation.

Duration: 40 min.

Materials: Motivation box, proverbs.

Preliminary Preparation: Write each proverb on a separate piece of paper, fold them, and put all the proverbs into a box.

Process:

A brainstorming session is conducted by asking teachers the following questions:

- In your opinion, does the success curve increase linearly?
- What are some situations in your life that you consider as achievements? Did you face any difficulties while achieving these?
- Is struggling in the face of difficulties one of the sources of success?
- Why do we struggle when faced with challenges? What happens if we do not?

After collecting responses from the teachers, it is explained that one of the things that keeps us going on the road to success is motivation.

Teachers are then divided into groups of five. Each group is asked to pick a paper from the "Motivation Box." They are instructed to create a story related to the proverb they have picked and to act it out. The proverbs included in the box are:

- The world remembers the persevering, not those who give up.
- The key to success is not letting go of the rope.
- If there are no obstacles on the road you are walking, there will be no miracles at the end of that road.
- To reach your goal, you need to start today.
- If you don't give up, you still have a chance. The greatest defeat is giving up.
- It is not dreams that are high, but the efforts that are short.

- Perseverance is failing nineteen times and trying the twentieth time.

Teachers are then asked to act out the stories they have created and present them to their peers. Opinions are collected about the events depicted in the role plays. The question, “What would you do in such a situation?” is posed to the group.

The activity is concluded by emphasizing the importance of effort and motivation in achieving success.

Activity Name: My Sources of Motivation

Learning Outcomes: Teachers will be able to express that there are different sources of motivation.

Duration: 40 min.

Materials: Cardboard, board, board marker, story sheet, motivation card.

Process:

The session begins by asking teachers the following question:

- Why did you come here today?

All answers given are written on the board without any intervention (e.g., My principal made it mandatory, to learn, to benefit students, etc.).

After everyone who wishes to share has done so, the facilitator emphasizes that teachers came here today for different reasons, and thus, with different sources of motivation.

The group leader explains that motivation is divided into two types: intrinsic and extrinsic, and defines motivation. The facilitator hangs two different pieces of cardboard labeled "intrinsic" and "extrinsic" in a place visible to participants, and initiates a discussion on which of the motivations written on the board are intrinsic or extrinsic. The group's decisions are written on the respective cardboards.

Next, participants are divided into groups of five, and each group is given the same half-story and a different internal dialogue card (Appendix 1). Teachers are asked to complete the story based on the internal dialogue written on their card.

When all groups have finished their stories, group spokespersons take turns coming to the board and reading their group's story to everyone. After each story, the source of teacher Ali's motivation for teaching is discussed, and the identified sources of motivation are written on the board.

Through brainstorming, the group decides which of these sources of motivation need to be changed. Then, groups are asked: "What could we change in Ali Bey's life for him to have intrinsic motivation for teaching?" Together with the participants, what Ali Bey and the school can do is discussed. (At this stage, it is emphasized that some factors—such as salary—are systemic and unchangeable, but the important thing is to focus on what we can control.)

The facilitator stresses that every teacher is motivated by something different when entering the classroom, and the same is true for students. Teachers are asked to consider and write down what motivates their own students to come to school.

Teachers are then divided into groups of four, and each group is asked to create a word puzzle about student motivation for another group. The facilitator randomly assigns each puzzle to another group, and everyone solves another group's puzzle.

After the puzzles are solved, a discussion takes place about what can motivate students, and each participant shares the motivations they identified with the group.

The facilitator concludes the session by reiterating that both teachers and students may have different sources of motivation in the school, and that motivation has two types: intrinsic and extrinsic.

Notes to Practitioner:

Teachers are asked to record what motivated them to enter the classroom before each class until the next session.

The facilitator may use the following motivation definitions when explaining the topic:

1. Motivation is the sum of intrinsic and extrinsic factors that determine the level, direction, and persistence of effort an individual exerts to achieve a specific goal.

Source: Ryan, R. M., & Deci, E. L. (2000). "Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being." American Psychologist, 55(1), 68–78.

2. Motivation is the set of intrinsic and/or extrinsic factors that lead an organism to engage in behavior directed toward a specific goal.

Source: Schunk, D. H., Pintrich, P. R., & Meece, J. L. (2014). Motivation in education: Theory, research, and applications. Pearson Higher Ed.

3. Motivation is the driving force an individual feels to meet needs, achieve goals, or sustain behavior.

Source: Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behavior. Springer Science & Business Media.

4. Motivation refers to the psychological mechanisms that direct the process of expending energy toward a specific goal.

Source: Robbins, S. P., & Judge, T. A. (2019). Organizational behavior. Pearson.

Appendix 1:

Event: That morning, Teacher Ali woke up with a feeling of unease. The road to the school he always took felt overwhelming this time, and his feet did not want to move forward. He walked toward the door of class 7-A, where he would teach the first lesson of the morning…

Internal Dialogues
"I don't get paid enough for this job. Teacher salaries are really low."
"My students' learning is more valuable to me than anything else. When they thank me, I feel that all my effort is worth it."
"If I don't go to class now, the principal will give me a hard time."
"When the children I teach do better on exams, I wonder about the reactions of the other teachers."
"As a teacher, I owe it to these children to do my very best."

Appendix 2: Word Puzzle Template

MOTIVATIONAL WORD SEARCH PUZZLE

Activity Name: Motivation in My Lesson

Learning Outcomes: Teachers will be able to recognize how their own and their students' motivations are reflected in the classroom.

Duration: 40 min.

Process:

The facilitator begins the session by reminding participants that individuals' sources of motivation can change and that motivation can be divided into intrinsic and extrinsic types, as discussed in the previous session.

Participants who would like to share their reflections about the homework from the previous session are invited to do so, with attention given to what they noticed upon self-reflection.

Participants are then asked to close their eyes and imagine calendar pages. "You see today's date on the calendar. Now I'd like you to slowly turn the calendar pages back. You arrive at the year you first started teaching. Turn the pages back a little further. You're at university. Now you go back to high school. Let's keep turning the pages slowly. Now you're in middle school. Stay there. You're in 7th grade and about to meet your science teacher for the first time. What were you expecting? What did you find? Do you remember your science teacher? What's the first thing that comes to mind about them? What do you remember about science class? Which topics interested you in middle school science class?" These questions are used to help teachers recall their experiences in middle school science classes.

After saying, "Now fast forward the calendar pages and return to the present," participants are invited to share their middle school science class memories. As teachers share their experiences, the facilitator asks the following questions:

- What made you interested or uninterested in science class?
- How did your source of motivation reflect on your attitude toward the lesson?

After participants have shared, the facilitator summarizes the contributions, highlighting similarities and differences. Special attention is drawn to how positive attitudes toward science developed and how this was reflected in the lesson.

The facilitator then announces a role-play activity and selects four volunteers to play the role of students. Each student randomly selects one of the pre-prepared instruction cards and is told not to share their instructions or role with others. After the role-play, the group is told they will try to guess the roles.

Card 1: You love science class because you want to become a doctor like your aunt, and you know that you need to learn science and be successful to achieve this.

Card 2: After middle school, you will work with your father in the vineyard/orchard. You are not worried about academic success because you will enroll in an open high school and spend most of your time working with your father.

Card 3: You struggle to succeed in science class. Because of an accident in sixth grade, you missed most classes and now find it difficult to understand the 7th-grade topics.

Card 4: Your family insists that you be successful in all subjects. If you are not, they threaten to withdraw you from school and either marry you off or put you to work, but you want to continue your education.

Once the roles are distributed, a classroom simulation is conducted, with the four students behaving according to their assigned roles. Another participant is randomly chosen to play the teacher, who is asked to teach a lesson to this class. After a five-minute role-play, the students are asked about their motivation levels. Then, a different volunteer teacher is selected, and they teach the same class. The activity continues until at least four different classroom settings have been simulated.

Afterward, participants are asked:

- In your opinion, which student had the lowest motivation for the lesson?
- Which teacher's behavior was most effective in engaging which student?
- What might be the sources of motivation for these students?

After discussing the answers, the students reveal their instruction cards to the group, and the group discusses whether their predictions were accurate.

Next, a brainstorming session is held with the following question:

- In your opinion, what could the teacher have done to engage students with these four different sources of motivation?

After receiving responses, the group decides which suggestion is the best if there are multiple ideas. A participant is chosen to play the teacher and implements the agreed-upon suggestion in the classroom with the four student roles.

In the final role-play, how the teacher engages students with four different sources of motivation is discussed, and the activity concludes.

MODULE 10: STRESS MANAGEMENT

Overall Aim: By the end of the lesson, individuals will gain awareness of how to cope with stress.

Activity Name: Is a Stress-Free Life Possible?

Learning Outcomes: Teachers will be able to define stress and describe its responses.

Duration: 25 min.

Materials: Appendix 2: Human Figure, pen.

Preliminary Preparation: Reproduce enough human figure templates for the number of participants.

Process:

Teachers are informed that this activity will focus on stress and its nature. The facilitator shares the theoretical information in the facilitator's note section regarding stress. Blank human figure templates are distributed to teachers. Each participant is asked to indicate on the human figure any physical changes, feelings, or behaviors they experience in stressful and tense situations. Those who wish may use colored pens and write their responses on the figure. Volunteer teachers are invited to share their stress responses. If any responses on the attached list are missing, the group leader adds them and asks if anyone has experienced those symptoms.

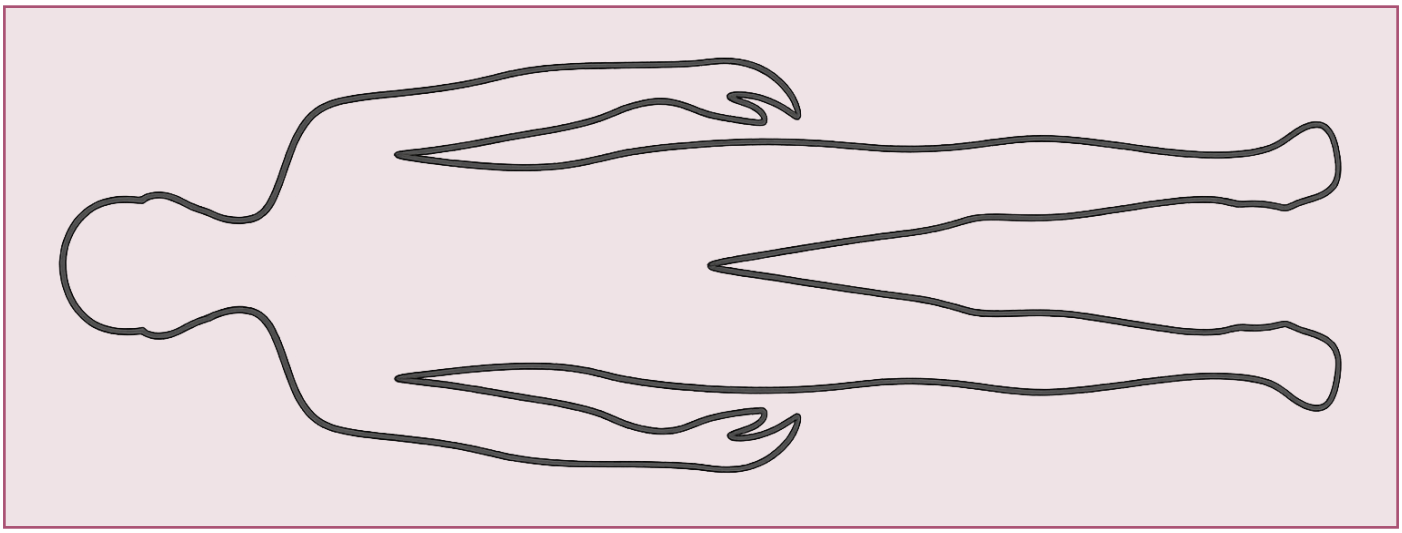
Notes to Practitioner:

Stress is the emotional and physical tension caused by our response to external pressures. It is also an indispensable part of daily life. Without stress, our bodies could not respond even in times of danger. The same stress that makes us flee from an oncoming car or animal, or drives us to study for an important exam, is what motivates us. Positively, stress encourages the organism to act and achieve goals. Negatively, it depletes an individual's resources and renders existing coping skills ineffective. Stress helps us deal with challenges and problems, or it can make them worse. Therefore, a "stress-free" life is neither possible nor desirable. What is important is keeping stress at an optimal level.

Appendix 1: Stress Responses

- Secretion of stress hormones such as adrenaline and cortisol by the adrenal glands
- Increase in heart rate
- Increase in respiratory rate
- Increased blood flow to the muscles
- Increase in blood pressure
- While short-term stress can enhance the activity of the immune system, long-term and chronic stress may suppress the immune system
- Symptoms such as nausea, diarrhea, or constipation
- Sleep problems
- Depressive mood
- Tension
- Restlessness
- Difficulty concentrating
- Feeling tired

Appendix 2: Human Figure



Activity Name: I Can Notice Stress

Learning Outcomes: Participants will be able to recognize situations in which they experience stress.

Duration: 40 min.

Materials: Appendix 1, pen, board, projector, sound system.

Preliminary Preparation: Make enough copies of the scale in Appendix 1 for the number of participants.

Process:

Distribute the scale in Appendix 1 to the participants. After each participant completes the scale, the scoring system is explained, and volunteer teachers are invited to share their scores. It is emphasized that there are individuals in the group with different levels of stress, then the next step is introduced. Blank papers are distributed to the teachers, and they are asked to list situations that may have caused them stress in the past month. After the lists are completed, they are paired up and told to share their lists with each other. During the partner discussions, the group leader may guide the conversation with the following questions:

1. Are there similar situations on your and your partner's lists?
2. Are there different situations on your and your partner's lists?
3. Could any situation experienced by your partner also be a source of stress for you?

After the pair discussions, volunteer teachers are invited to share their experiences. The stress-inducing events shared from their lists are written on the board. Then, the slides in Appendix 2 are projected, and the difference between major life events and daily hassles is explained, with emphasis placed on the significance of daily hassles in our lives.

The video "Stress Management – Put the Glass Down" is shown. After watching the video, a group discussion is initiated based on the following questions:

1. What caught your attention in the video?
2. What burdens do you carry with you throughout the day?

Teachers are then asked to code the situations on their lists as "B" if it is a major life event, and "D" if it is a daily hassle. It is shared that daily hassles occur more frequently, accumulate to cause stress, but are often overlooked and receive less attention compared to major life events. The activity is then concluded.

Notes to Practitioner: On the scale, "Never" = 0 and "Very Often" = 5. As scores approach 100, the individual's level of stress can be considered higher.

Appendix 1: Perceived Stress Scale

		Never	Almost Never	Sometimes	Fairly Often	Very Often
1	In the past month, how often have you been upset because something unexpected happened?					
2	In the past month, how often have you felt that you were unable to control the important things in your life?					
3	In the past month, how often have you felt nervous and “stressed”?					
4	In the past month, how often have you felt confident about your ability to handle your personal problems?					
5	In the past month, how often have you felt that things were going your way?					
6	In the past month, how often have you found that you could not cope with all the things that you had to do?					
7	In the past month, how often have you been able to control irritations in your life?					
8	In the past month, how often have you felt that you were on top of things?					
9	In the past month, how often have you been angered because of things that were outside of your control?					
10	In the past month, how often have you felt difficulties were piling up so high that you could not overcome them?					

Eskin M, Harlak H, Demirkıran F, Dereboy Ç. Adaptation of the Perceived Stress Scale into Turkish: Reliability and Validity Analysis. Yeni Symposium Journal 2013; 51(3): 132-140.

Appendix 2: Stres Presentation

Categories of Stress:

Important Events

- Loss of a loved ones
- Natural disasters etc.

Daily Hassles

- Traffic
- Daily tasks
- Parent-teacher meetings, etc.

Daily Hassless

Disturbing, discomforting demands experienced daily in interaction with the environment.

Small experiences we encounter in everyday life, such as work, caring for others, and balancing work and home life.

Compared to major life events, they are less significant but occur more frequently.

They have a greater impact on well-being.

Activity Name: I Can Control Stress

Learning Outcomes: Teachers will be able to express stress management techniques.

Duration: 30 min.

Materials: Appendix 1, pen, colored pencils.

Preliminary Preparation: Make enough copies of Appendix 1 for all participants.

Process:

Appendix 1 is distributed to the teachers. They are asked to color or mark the activities on the list that they practice. They are also told that they can write their own strategies in the blank boxes if their methods are not listed. After everyone completes their markings, volunteers are invited to share how they cope with stress. The group leader highlights the common and different strategies within the group. Afterwards, teachers are asked if there are any strategies they have never tried so far, and if so, which ones. Possible obstacles to trying these strategies and how these might be overcome are discussed.

Teachers are then asked to sit comfortably and close their eyes. They are instructed to relax all their muscles as much as possible and take up the most comfortable position for themselves. The group leader gradually guides them to imagine a peaceful place. This could be by the sea or in a wooded area. By asking what they see, smell, and hear, the leader continues the visualization. Next, attention is directed to how their bodies feel relaxed and to their sensations. When teachers are ready, they are asked to return to the present and open their eyes.

The group leader emphasizes that this relaxing place is always with us, and just as we feel calm and peaceful there, we can recapture that feeling. They are told that in stressful moments, by taking just two minutes to close their eyes, they can visit this peaceful place to regain control over both their bodies and emotions.

Notes to Practitioner: If the environment is not suitable for sitting comfortably, or if there are concerns about trust between teachers that may make it difficult to close their eyes, the relaxation exercise can also be done by having participants draw their peaceful place.

Appendix 1: Stres Management Techniques

Breathing Exercises	Yoga	Walking
Getting Enough Sleep	Listening Music	Taking a Shower
Eaing Balanced Diet	Exercising	Spending Time with Loved Ones
Keeping a Journal	Meditation	Praying
Drawing/Painting	Coloring Mandalas	Cooking

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