

5



Accelerated Education Introductory Teacher Training Pack

How We Learn

How We Learn

This is Session 5 out of 18 from the Accelerated Education Introductory Teacher Training Pack (AEITTP).

The AEITTP is designed specifically for teachers working in accelerated education programme (AEP) classes and teaching learners generally aged 10-18 who are overage for their grade. Many teacher training institutes or in-service training courses are focused on formal primary school classes and younger children. These courses are not always relevant for teachers of older AEP learners. Older learners bring a richer set of life experiences and skills to their learning compared to younger children. Older learners are also more cognitively mature so are able to learn at a faster pace. The AEITTP is based on the pedagogy (way we learn) that would best suit older learners' needs in an accelerated education setting. It is designed to help AEP teachers develop the skills needed to support the learning needs of AEP learners, so they are able to access certified education, further training or livelihood opportunities. The AEITTP is founded on the AEWG's [Accelerated Education 10 Principles for Effective Practice](#) and AE Teacher Competencies. It is a generic inter-agency course for use by accelerated education programmes. The training sessions, vocabulary and tools have been aligned with the The Teachers in Crisis Context (TiCC) [Training Pack for Primary School Teachers](#) to enable consistency of approach where appropriate. However, it has adapted the content for older learners and to reflect AE pedagogy.

5: How We Learn

TRAINER OVERVIEW	
Session time	3 hours
AE teacher competency	11: Uses age-appropriate teacher strategies
Learning Outcomes	<p>At the end of the session participants will be able to:</p> <ol style="list-style-type: none"> 1. Understand the adolescent brain, how it impacts behaviour and learning 2. Develop approaches to manage learners' toxic stress 3. Design appropriate learning activities based on older (adolescent) learners' experience, interests, and intelligences
Materials	<ul style="list-style-type: none"> » Trainer Resource 5.1: English walnut » Trainer Resource 5.2: Pictures A-L (can be shared as a powerpoint presentation if printing isn't possible) » Trainer Resource 5.3: Multiple intelligences » Handout 5.1: The brain (1 copy per participant) » Handout 5.2: Functions of the prefrontal cortex » Handout 5.3: Multiple intelligences matching exercise (1 copy per participant) » Handout 5.4: Multiple intelligences in the classroom (1 copy per participant) » Items: <ul style="list-style-type: none"> ▪ Grapefruit/cabbage/coconut ▪ Walnut/pecan nut ▪ Crumpled newspaper/flip chart paper ▪ Thick yoghurt/cream cheese ▪ Grey paper » Agree-disagree signs » Multiple intelligences chart » Flip chart paper and markers

OVERVIEW

Steps	Method	Time	Materials
Introduction	Presentation	5	Session Outcomes
1: The brain	Real items Presentation Agree disagree	45	Grapefruit/cabbage; English walnut/pecan nut; crumpled newspaper/flip chart paper; thick yoghurt/cream cheese; grey paper. Trainer Resource 5.1: English walnut Trainer Resource 5.2: Pictures A-L Agree disagree signs
2: Learning and the brain	Interactive presentation Drawing	40	Chart of the brain/drawn on board Handout 5.1: The brain

BREAK

3: Stress and the adolescent brain	Interactive presentation Group work	45	Handout 5.2: Functions of the prefrontal cortex Flip chart and markers
4: Focus exercise	Rub-a dub	5	
5: Intelligence	Presentation Think-pair-share Matching activity Visualisation	30	Trainer Resource 5.3: Multiple intelligences Handout 5.3: Multiple intelligences matching exercise Handout 5.4: Multiple intelligences in the classroom
Reflection	Think-pair-share	10	Session Outcomes

STEPS



Introduction

1. Write the title of the training session on the board: *5: How we learn*
2. Say:
 - Welcome to session 5: How we learn.
 - In this session we will look at how the brain develops particularly for the age group of our AEP learners. We look at the impact the adolescent brain has on learning. We will discuss how we learn, and the different intelligences we use and should consider in our teaching.
3. Write session outcomes on the board/wall.
4. Say:
 - By the end of the session, you will be able to:
 - ▷ understand the adolescent brain, and how it impacts behaviour and learning
 - ▷ develop approaches to manage learners' toxic stress
 - ▷ design appropriate learning activities based on older/adolescent learners' experience, interests, and intelligences.



1: The brain

INTRODUCTION: PROBLEM SOLVING (15 MIN)

1. Ask the participants to stand in a large circle.
2. Pass around the following items:
 - A grapefruit/cabbage/coconut or similar sized fruit/vegetable
 - An English walnut/pecan – or a picture (Trainer Resource 5.1)
 - A sheet of crumpled newspaper/flip chart paper
 - Thick yoghurt/cream cheese/porridge (in a plastic bag).
 - Something coloured grey (crayon, pencil, paper)
3. Ask:
 - What do you think each of these items represent in the body?
4. Listen to ideas.



Trainer tip:

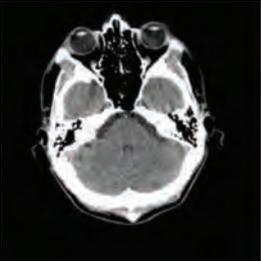
Substitute local items that have similar properties.

Trainer Resource 5.1



Trainer Resource 5.2: A-L

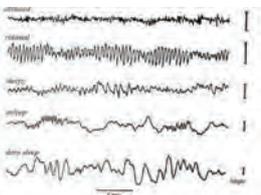
A & B



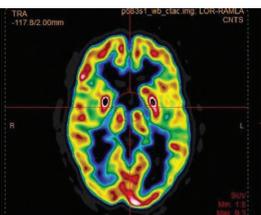
C & D



E & F



G



5. Say:

- These items represent the brain.
- The grapefruit/cabbage/coconut is about the weight of a child's brain. An adult brain weighs between 1-1.5 kg.
- The English walnut is what the surface of the brain looks like with bumps and dips.
- The newspaper represents the surface area of the brain.
- The custard/porridge in the bag is the consistency of the brain.
- The brain is grey in colour.

6. Ask:

- Have you seen an animal brain?
- Can you describe it?

7. Ask:

- Can anyone explain how the brain works?

8. Listen to participant ideas.

9. Ask the participants to sit.

INPUT: RECENT FINDINGS ABOUT THE BRAIN¹ (15 MIN)

1. Ask for a volunteer to stand at the front with you to hold the pictures from Handout 5.2. The volunteer will show each image as you say the letter associated with it..

2. Say:

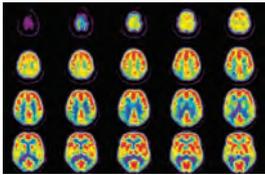
- In AEP we want the learners to learn in the best way they can. This means understanding how we learn and how the brain works. I will give a very simplified presentation on the brain and recent findings about how it works.
- In the past, scientists and doctors dissected the brain to try to understand how it worked. Now scientists can watch your brain working, using new imaging techniques. Knowing how the brain works helps us understand how we think, and what happens when the brain is damaged or affected by illness. Scientists and doctors can study your brain in several ways.

- **A & B** They can create an image of the inside of the brain using computerised axial tomography (CAT).
- **C & D** They can also use magnetic resonance imaging (MRI) scans.

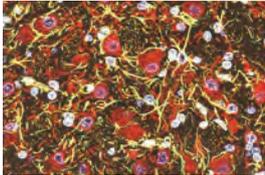
3. Ask:

- Has anyone been inside a machine like this?

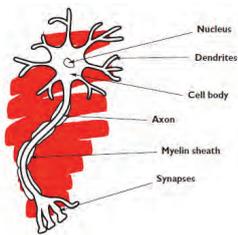
H



I



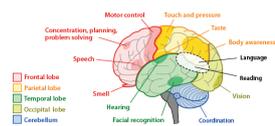
J



K



L



4. Ask:

- **E & F.** They can measure how active the brain is, using an electroencephalograph (EEG).
- **G.** They can find out which parts of the brain are active when doing a particular task, using Functional MRI (fMRI) and Positron emission tomography (PET) scans.
- **H.** These scans have given scientists a better understanding of how the brain works and how it changes or ages over time.
- **I.** We are born with over 100 billion brain cells or neurons. After we are born few brain cells develop. In fact, we lose 100,000s of brain cells every day. But don't worry, even if we live to 100, we will still have over 96 billion brain cells.
- **J.** Each brain cell can send and receive information. The sending part of the brain cell is called the axon, and the receiving parts are called dendrites. Cells are connected to hundreds of other brain cells by electrical jumps or synapses.
- The more the cell is stimulated, the more permanent the connection. This connection is the biological equivalent of learning.
- **K.** A network of connections is made through imitation, repeated movement, accumulated experience, memory, and response to current needs.
- These brain cell pathways continue to be made as we grow older. The more connections, the better the pathway and the easier it is for further learning to take place.
- **L.** Neuroscience has identified areas of the brain with specialised functions.
- More recently neuroscientists have focused on the adolescent brain. We will learn more about that later in the session.

PRACTICE: BRAIN DEVELOPMENT (15 MIN)

1. Show the signs for agree and disagree and put them on opposite sides of the room.

2. Say:

- We will now do an agree-disagree activity
- I am going to read some sentences.
- Think about each sentence.
- If you agree, walk to the tick (✓)
- If you disagree walk to the cross (X)

Agree

Disagree



3. Read the sentences below. Pause after each sentence to give participants time to walk.

- A. All children's' bodies and brains develop at the same rate. *(Disagree: Each child is an individual and develops at their own pace.)*
- B. Our brains finish maturing/developing at 18 years of age. *(Disagree: Recent research suggests the brain has not fully matured until about 25 years of age.)*
- C. Different parts of the brain develop or mature at different times. *(Agree)*
- D. During adolescence (age 10-20) the brain has the greatest potential for learning. *(Agree)*
- E. This method of agree disagree can be used in AEP classes. *(Agree: it is a good activity to use for finding out and checking knowledge. It can encourage discussion. It is also a change in activity and allows the participants to move around.)*

4. Ask some participants to talk about their decision and give their opinion. Provide feedback if necessary.
5. Ask participants to sit.
6. Say:
 - In AEP our focus is generally on learners aged between 10-18 so we need to fully understand how the brains of the learners in our class develop and can learn best.



2: Learning and the brain

INPUT: INTERACTIVE PRESENTATION

1. Say:
 - In the last 15 years a lot has been learnt about the brain, particularly the adolescent brain. This is the period of brain development after puberty.



Definition:

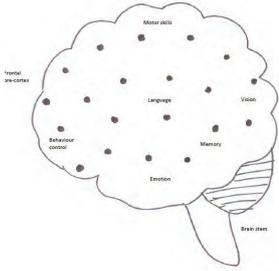
Neuroscience: The study of the brain and its functions.



Trainer tip:

This activity is better on a board as you need to erase some lines later in the activity.

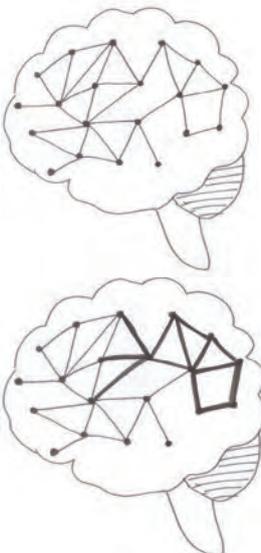
Handout 5.1



Trainer tip:

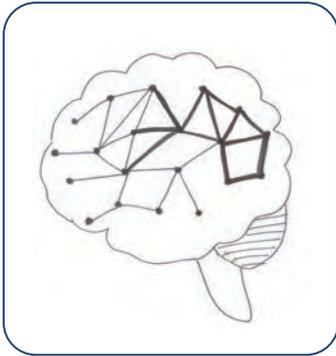
Drawing is an effective method to keep learners engaged in a lesson and works with different learning styles.

Example of Completed 5.1



- Between childhood and adulthood, hormones kick-start a phase of significant change. The physical changes of adolescence and puberty are obvious but the changes in our brains are less visible. Legally children become adult at 18 but in neuroscience the brain is still developing up to about age 25 or so. During the period from puberty to 25 our brain is undergoing a period of remodelling.

- Draw the brain on the board. If you have no board, put up a chart.
- Distribute **Handout 5.1**.
- Say:
 - This is a very simplified picture of the brain. As I give this presentation, I will draw on my diagram. I want you to draw with me.
 - Our brains are made up of brain cells called neurons which are the dots on the diagram. Different parts of our brain are responsible for different things. Such as memory, vision, language, emotions, motor skills (movement) and behaviour control. As our brains develop, connections between neurons are formed. These connections allow us to get better at controlling our behaviour, seeing, talking, feeling, moving and memory
- Draw lines between the dots (neurons) on your brain image.
- Say:
 - In childhood neurons are increasing their connections with each other. These connections are called synapses. The child is learning everything about everything.
 - Think of the connections between neurons as paths created to go to an AEP centre or market. At the beginning, the path might be bumpy, overgrown with weeds, or difficult to follow. It does not actually become a path until lots and lots of people have walked that same path over and over again. The path becomes smoother and easier to see where you are going. Our brains are built in this same way. Connections in the brain get stronger when children are in safe environments, have strong relationships, and are cared for.
- Draw thicker lines between some of the neurons on your brain image.
- Say:
 - In adolescence, the brain begins to prune the connections. It keeps the connections that are well used but cuts away connections that are not used. The pruning process lets the brain specialise. It's this process that makes us capable of faster, clearer, and more complex thoughts as we grow up.
- Erase one or two of the connections.
- Say:
 - Think about a time you were at school learning about equations in science. Do you remember them now?



Definition:

Motor skills: Involved in the movement and coordination of parts of the body.

Definition:

Impulse: To do something suddenly without careful thought.

- The brain has pruned out these connections.
- Pruning happens at different rates in different areas of the brain. The back of the brain starts maturing first. The front part of the brain, the pre-frontal cortex, is the last to mature.

11. Ask:

- What function does the part of the brain that matures first have?
- What function does the part of the brain that matures last have?

Example answers:

- First to mature: Back part of brain: Vision, memory, motor skills, language, and emotion
- Last to mature: Front part of brain: Behavioural control

12. Say:

- By the time we are adolescents the neural networks that communicate emotion, risk and reward are well developed. So, adolescents enjoy taking risks, are more interested in immediate gratification and are a bit emotional.
- The last area of the brain to mature at the front (prefrontal cortex) is responsible for: planning, decision making, focusing our attention, and controlling our emotions and impulses.
- Controlling our impulses helps us set priorities, and resist impulsive actions or responses
- Controlling our emotions helps us recognise and control feelings and responses to feelings
- Focusing attention allows us to concentrate on an idea or task for a period of time.
- Decision-making helps us to think about the possible outcomes of our actions and choose the action that gives the best result.
- As the front part of the brain responsible for behaviour control is last to develop/mature it means adolescents are more impulsive, more emotional and less focused. They take more risks because they worry less about future consequences.

13. Ask:

- Does anyone recognise these behaviours in their children or their AEP learners?

14. Listen to some participants responses.

15. Say:

Definition:

Social anxiety: The fear of being judged and evaluated negatively by other people, leading to feelings of inadequacy, inferiority, self-consciousness, embarrassment, humiliation, and depression.

- This mismatch between emotions and behaviour control or judgement happens at the same time as the adolescent emotional and social worlds are becoming more complex. Adolescents are dealing with the physical changes of puberty, learning to negotiate new responsibilities, friendships, and relationships; and developing their own identity as they move towards independence and adulthood.
- So, it is quite normal to have an increase in social anxiety and worry about being judged.
- Therefore, adolescence can be a difficult time for some, but it is also a golden time for learning and growth.
- The adolescent brain is particularly agile and flexible. It learns more quickly than adult brains and with greater accuracy. Adolescents are going to make mistakes, but they have a brain that's encouraging them to learn and explore and push boundaries.
- Adolescents' brains are especially open to new opportunities, new technologies and new experiences. Adolescents have energy, the ability to lead and to motivate and find life exciting in a way that adults don't in later life.
- By providing the right sorts of learning opportunities, we can help adolescents develop healthy brains to enable them to be healthy, happy, and responsible family and community members.

REFLECTION

1. Ask:

- What conditions need to be present for a healthy brain to develop?

2. Listen to some participants ideas.

Answers:

- Safe and predictable environment
- Supportive and consistent adult relationships
- An overall caring environment

3. Ask:

- What do you think happens when these conditions are not present?
- What sort of things might prevent healthy brain development?

4. Listen to some participants ideas.

Possible ideas

- When healthy conditions are not present the brain may not develop in one area very well. Speech or movement could be affected for example
- Isolation, lack of care and love, lack of stimulation, worry and stress may all prevent healthy brain development



3: Stress and the adolescent brain²

INTRODUCTION: MANAGING STRESS (10 MIN)



Trainer tip:

Refer to training session 3: Knowing your learners and the activity on barriers to attending and learning in class.



Trainer tip:

This could trigger a stress response if participants have been through difficult situations or they themselves have experienced toxic stress. Be very clear that you are talking about daily, manageable stressors.

Definition:

Empathy: The ability to understand and share the feelings of another

1. Say:

- As we have already discovered, there are some physical and psychological damage that can prevent healthy brain development.

2. Ask:

- What are some of the normal things teachers and learners experience every day that may leave us feeling stressed or worried?

Possible answers

- Work
- Exams
- Children and family
- Daily responsibilities
- Local conflicts

3. Ask:

- When a student or a teacher feels stressed from everyday life how might they behave?

4. Listen to some participant responses.

5. Say:

- It is common to become angry, lack empathy or be unable to focus when faced with normal everyday stresses

6. Say:

- How do you manage the stress and worries you experience?

Possible answers

- Talk to a friend
- Spend time with family
- Pray
- Meditate
- Exercise
- Sing
- Attend church/mosque/temple

Definition:

Toxic stress: Stress that is overwhelming and it is difficult to cope.

7. Say:

- Stress and worries are not harmful if we have ways to manage it and supportive people around us. However, some levels of ongoing stress can be overwhelming, and it is difficult to cope. We call this toxic stress.

8. Ask:

- What can lead to toxic stress?

Possible answers

- Conflict, war
- Exposure to violence
- Abuse (physical, emotional, sexual, neglect, exploitation),
- Physical injury or poor health
- Discrimination
- Displacement (becoming a refugee, or forced to leave your home)
- Extreme poverty
- Lack of access to health, education, and other social services
- Major changes in the family (divorce, being orphans)

INPUT: TOXIC STRESS IMPACT ON THE BRAIN (10 MIN)

1. Say:

- Not all learners come from the same background, or have the same exposure to distressing events. Every student has their own unique story.
- However toxic stress can disrupt the paths being made in the brain

2. Say:

- We are going to act out the effect on the brain of toxic stress. But first we will act out the process of brain development.

3. Explain task

- I want everyone to move to the space and stand at arm's length from each other.
- You are the brain cells.
- As the brain develops connections are made – so join hands with other participants.
- During adolescence some connections are pruned. So can you three drop one arm. [Select 3 participants to drop one arm]
- Now we have some stress – the family is forced to move from the village and the adolescent feels stressed and worried.
- I want you all to shake your arms. This is the stress on the brain.
- Some of the connections are broken by the stress. If the stress continues for a long time, the connection will be broken from adolescence into adulthood. [Point to some participants]
- These participants are at the front of the brain which is responsible for behavioural control. The broken connections mean that the brain is no longer good at controlling impulses or emotions, taking decisions, or focussing attention.
- The adolescent may lack these skills if the stress continues, and they don't get some help.

4. Ask everyone to sit.

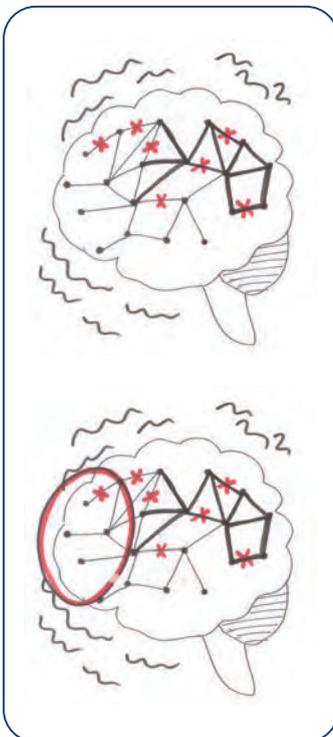
5. Draw toxic stress lines outside your image of the brain. Draw X's to show that some of the connections are broken. See example on the left.

6. Ask participants to draw toxic stress lines and X's on their handouts.



Trainer tip:

You may want to separate male and female participants into 2 groups for this activity



7. Say:

- When the connections in the brain are disrupted by toxic stress in childhood and adolescence, this can cause issues in the long term. Adults who experience toxic stress as children and adolescents can often have broken connections and damage to the front part of the brain.

8. Draw a circle around the pre-cortex where the emotion and behavioural control neurons are.

9. Ask participants to draw a circle around the front of the brain.

10. Ask:

- Can you remember the role of the front of the brain (pre-cortex)?

Answers

- Controlling our impulses – helps us set priorities, and resist impulsive actions or responses
- Controlling our emotions – helps us recognise and control feelings and responses to feelings
- Focusing attention – allows us to concentrate on an idea or task for a period of time.
- Decision-making – helps us to think about the possible outcomes of our actions and choose the action that gives the best result.

11. Say:

- These are social and emotional skills, which are critical life skills. AEP learners who have experienced toxic stress in the past often lack these life skills.

PRACTICE: TOXIC STRESS AND IMPACT ON THE CLASSROOM (20 MIN)

Definition:

Technique: Giving a limited time to present helps the presenter organise their thoughts. Presenting to a group provides practice for speaking skills, to be clear and concise.



Trainer tip:

Some guidance on making groups can be found in the Trainer notes at the end of this session.

Handout 5.2

Handout 5.2 Functions of the prefrontal cortex (front of the brain)

The last area of the brain to mature at the front (prefrontal cortex) is responsible for: planning, decision making, focusing our attention, and controlling our emotions and impulses.

Impulse control

• Controlling our impulses helps us set priorities, and resist impulsive actions or responses

Emotional control

• Controlling our emotions helps us recognise and control feelings and responses to feelings

Focusing attention

• Allows us to concentrate on an idea or task for a period of time.

Decision making

• Helps us to think about the possible outcomes of our actions and choose the action that gives the best result.

Task

1. In your group discuss the function of the front of the brain (prefrontal cortex) you have been given.
2. Discuss the problems that may happen in the classroom.
3. Discuss the problems that may happen within the family, with friends or the community
4. Write your ideas on a flipchart
5. Choose one member of your group to present your ideas.

1. Explain task:

- For this activity I will put you in groups.
- Each group will receive Handout 5.2 with the function of the front of the brain and some questions.
- Discuss the questions for the function I give you and write your ideas on a flip chart.
- Each group will have 10 minutes to complete the activity.
- One person in the group will collect a flipchart paper and marker.
- Select a group member to present your ideas.

2. Check the instructions with a participant to make sure they have understood. Ask:

- What do you have to do?

3. Make groups of 4 using the counting off method. Indicate where each group should sit.

4. Distribute Handout 5.2.

5. Give each group one function of the frontal pre-cortex:

- a. Impulse control
- b. Emotional control
- c. Focusing attention
- d. Decision-making

4. Monitor groups and guide them in their thinking.

5. After 10 minutes ask groups to stop.

6. Ask each group in turn to present their answers

POSSIBLE ANSWERS

	Inside the classroom	Outside the classroom
Impulse control	<p>Cause noise, disruption, unnecessary movement, take risks, shouting out answers</p> <p>Needed when raising their hand before asking a question, working through difficult problems, sharing with peers</p>	<p>Takes risks, easy to get into arguments or fights, can't keep their hands to themselves which may result in stealing or inappropriate touching</p> <p>Needed when resisting fighting or shouting back, keeping their hands to themselves</p>
Emotional control	<p>Many mood swings and changes in facial expressions, crying, getting over excited, gets upset easily, disagreements with friends quickly get out of control</p> <p>Needed during disagreements with peers, during stressful tests or frustrating projects, getting a disappointing grade, getting a good grade</p>	<p>Mood swings, disagreements get out of control quickly, getting over excited</p> <p>Needed during a stressful job interview, during a disagreement with a loved one, hearing bad news, hearing good news</p>
Focusing attention	<p>Careless, gets tired quickly, lacks respect, poor listening skills, restless</p> <p>Easily distracted, finds it difficult to follow instruction, read from a book, listen to presentations, complete tests, and do homework</p>	<p>Difficult to follow conversations, feelings of boredom, doesn't complete chores/tasks</p>
Decision making	<p>Wastes time, indecisive, often gives wrong response</p>	<p>Risky behaviour, peer influence, leading to use of drugs, alcohol, unprotected sex and other dangerous activities</p> <p>Finds it difficult to keep a job</p>

7. Say:

- If learners have experienced toxic stress, it can affect their abilities in the classroom and in the community. However, learners can recover from the brain damage that occurs due to toxic stress. The social emotional skills associated with the frontal pre-cortex (impulse control, emotional control, attention, decision-making) can be taught and practiced in the classroom.
- For example, the more time we spend teaching and showing adolescents kindness and respect, the stronger the connections between the cells (neurons) in their brains become for kindness and respect.

REFLECTION (5 MIN)

1. Ask:

- I want you to think quietly about your family and particularly the children or adolescents around you. What can you do to help them develop healthy brains?

2. After a few minutes say:

- Brain development, much like physical development, happens at a different pace for every adolescent. As a result, adolescents of the same age may not have the same thinking and reasoning skills. Additionally, brain development occurs at a different rate than physical development. This means that an adolescent's thinking may not match the adolescent's appearance. For example, a boy may be tall, but he still likes to play childish games. This has implications on the way we teach AEP learners.



4: Focus exercise³

1. Ask participants to stand.

2. Say:

- We will practice a brain break called 'rub-a-dub'. This is a simple activity to strengthen the left and right sides of the brain.
- Gently rub your hand in a circle on your stomach.
- Stop, then pat your head with the other hand gently.
- Now do both together.
- Change hands. Change actions – rub your head and pat your stomach.

3. Comment on the participants that are doing well and the others than need to practice.



4. Say:
 - This exercise helps coordination, is fun, and can focus our attention.
5. Ask:
 - Can you use this in the AEP class?



5: Intelligence

INTRODUCTION⁴: (5 MIN)

1. Say:
 - In school, a student is often called 'not clever'. What is often forgotten is that 'clever learners' are only clever under school conditions – e.g. doing tests where writing well and remembering facts is considered important. Much of the information needed to be successful in such tests requires knowledge gained in the classroom.
 - So how does a child or youth, who fails in academic work, have the ability to motivate and organise, plan ahead, integrate new information, and join a football training session that involves time management, and travelling across the city? Doesn't this display intelligence?
 - Many successful businessmen and women have not attended school, yet they still have intelligence.
2. Ask:
 - Have you heard of Howard Gardiner's Theory of Multiple Intelligences?
3. Ask participants to explain if they know about the theory. Otherwise say:
 - Many scholars have challenged that intelligence is a single thing. In the 1980s, Howard Gardiner, a leading scholar in the area, identified three categories of intelligence, with a total of eight different intelligences in all. Now though a ninth intelligence has been added.

INPUT/PRACTICE: MULTIPLE INTELLIGENCES⁵ (20 MIN)



1. Put up Trainer Resource 5.3.
2. Say:
 - We have 9 intelligences.
 - Bodily – Kinesthetic
 - Interpersonal

- Verbal-linguistic
- Logical – Mathematical
- Naturalistic
- Intrapersonal
- Visual – spatial
- Musical
- Existential

3. Make groups of 2 Distribute **Handout 5.3**.

4. Explain task:

- With your partner, match the intelligence with the explanation in Handout 5.3.
- You have 10 minutes for this task

5. After 10 minutes check the answers.

Handout 5.3

Handout 5.3: Multiple intelligences matching exercise

Read the sentences below and draw a line to connect intelligence.

A. Skillful in social and emotion, enjoy rhythm, understand complex organization of words, use pitch tone and rhythm.	Interpersonal
B. Able to find the right words to express what they mean.	Intrapersonal
C. Understanding living things and reading culture. Symbols in the world or environment.	Verbal-linguistic
D. Use programs and signs which are structured thinking. Likes to quantify things and to solve problems and prove them.	Musical
E. Strong personal feelings and skills. Skilled in the art, good mediator and good communicator.	Bodily – Kinesthetic
F. Good at thinking about the world in diagrams. Likes pictures and mental images, good with maps, charts and diagrams.	Logical – Mathematical
G. Good at understanding the mind and body. Skilled at mathematics, thinking and touch, good control of objects.	Visual – spatial
H. Understanding of oneself, what you feel and what you want. Self motivated. High degree of self-knowledge, strong sense of self.	Naturalistic
I. Likes to tackle the questions of why we live, and why we die.	Existential

Answers

- Musical
- Verbal – linguistic
- Visual – spatial
- Logical – mathematical
- Interpersonal
- Visual – spatial
- Bodily – Kinesthetic
- Intrapersonal
- Existential

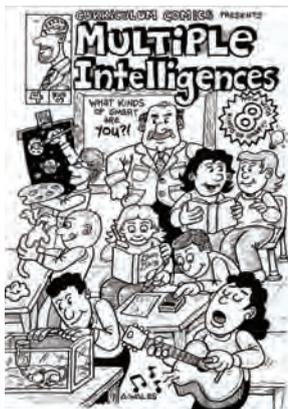
6. Explain task:

- In the same pair, look at the picture in Handout 5.4.
- Identify 8 intelligences being used in the picture and one intelligence that is missing?
- You have 5 minutes for this task.

7. Distribute **Handout 5.4**.

8. After 5 minutes, ask individual participants to point out the intelligence being used.

Handout 5.4



Answers

- Bodily – Kinesthetic – boy shaping clay into an animal
- Interpersonal – 2 girls talking
- Verbal-linguistic – 2 girls talking
- Logical – Mathematical – boy using calculator
- Naturalistic – by mouse cage
- Intrapersonal – girl writing in diary
- Visual – spatial – boy painting
- Musical – guitar player

9. Ask:

- Which intelligence is missing?

Answers

- Existential but the teacher may be thinking: Why am I here? What am I doing?



Reflection

1. Say:

- Research has found that if a student starts the day with a focus on their own 'intelligence' they do well. In addition, their learning in other areas improved.

2. Ask:

- What does this research finding mean when we are planning lessons for AEP learners?

Possible answers

- Older learners have often developed a more preferred intelligence
- We should vary our lessons to include all the different intelligences

- We should start the day and lesson in different ways so that learners with different intelligence strengths have equal opportunities to start the day well.
- Just because a student doesn't understand maths easily doesn't mean they are not intelligent. We have not found the right method to access their intelligence

3. Conduct a visualisation.

4. Say:

- I want you to close your eyes and visualise and imagine the story I will tell about using multiple intelligences.
- The job of the AEP teacher is to present lessons in different ways so that each student can use the intelligence and learning style that best suits them. Any topic of learning can be presented and understood in different ways. It is like entering a building. There are many different entrances, doors, windows, even chimneys. Each entrance is an entry point for learning. So, an entry point for learning could be: with a story, logical step by step instructions, artwork, a mathematical diagram, a series of visual images, a role play or series of discussions.
- As each student enters via their preferred intelligence they are learning well and progressing through the AEP curriculum successfully.
- Now breathe gently and open your eyes.

Reflection

1. Ask:

- Can you give me a description of the brain?
- What colour is it?
- How heavy is it?
- What shape is the surface?
- What is the surface area of the brain?

Answers

Grey, 1.5 Kg, surface is covered in bumps and dips and is the same area as a piece of newspaper/flip chart paper.

2. Ask:

- Did you find this easy to remember? Why?

3. Say:

- The answers were easy to remember because of the exercise we did at the start of the session. By linking the experience of touch to knowledge, our brain made a stronger connection helping us to remember it more easily. Using real objects and activities involving touch can really help our AEP learners learn.
- It is important to remember that pruning and removing the connections between brain cells takes place all the time so if you don't use your brain cells, you lose them

4. Refer to the learning outcomes on the board/wall.

5. Ask:

- Have the learning outcomes been achieved?

6. Make groups of 2 for think-pair-share

7. Ask groups to answer the following questions:

- What did you learn in this session?
- What did you enjoy in this session?
- What will you try in your classroom?

8. Ask some groups to share their answers.

----- END OF SESSION -----

End notes

^{1,3,4} Adapted from Save the Children Alliance. (2008). *A Training Module for Accelerated Learning*.

² Taken from International Rescue Committee and Creative Associates International. (2018). *Education in Emergency Project, Master Trainer's Training Guide, For 5-day Step-Down training of Learning Teachers in non-formal learning centres, DFID*.

⁵ Adapted from CRS. (2015). *Gaziantep 12 day in-service training workshop, for Syrian refugee teachers in Turkey*.

Trainer note

- For more information watch the 2 minute YouTube video of the development of the adolescent brain: <https://www.youtube.com/watch?v=dISmdb5zfiQ>.

Ideas for coaching

- Review a lesson with the teacher identifying the different types of activities to meet the needs of the different learners in the class.

Ideas for collaborative learning/self-study

- Teachers can ask learners about different teaching approaches and how they make them feel, and discover what they enjoy the most/least.
- Teachers can plan with their peers for different learning approaches using multiple intelligences.
- Teachers can observe the lesson of another teacher to get more ideas for teaching with different learning approaches.

Session Outcomes

By the end of the session, you will be able to:

1. Understand the adolescent brain, and how it impacts behaviour and learning
2. Develop approaches to manage learners' toxic stress
3. Design appropriate learning activities based on older/adolescent learners' experience, interests, and intelligences

Resource 5.1: Picture of an English walnut

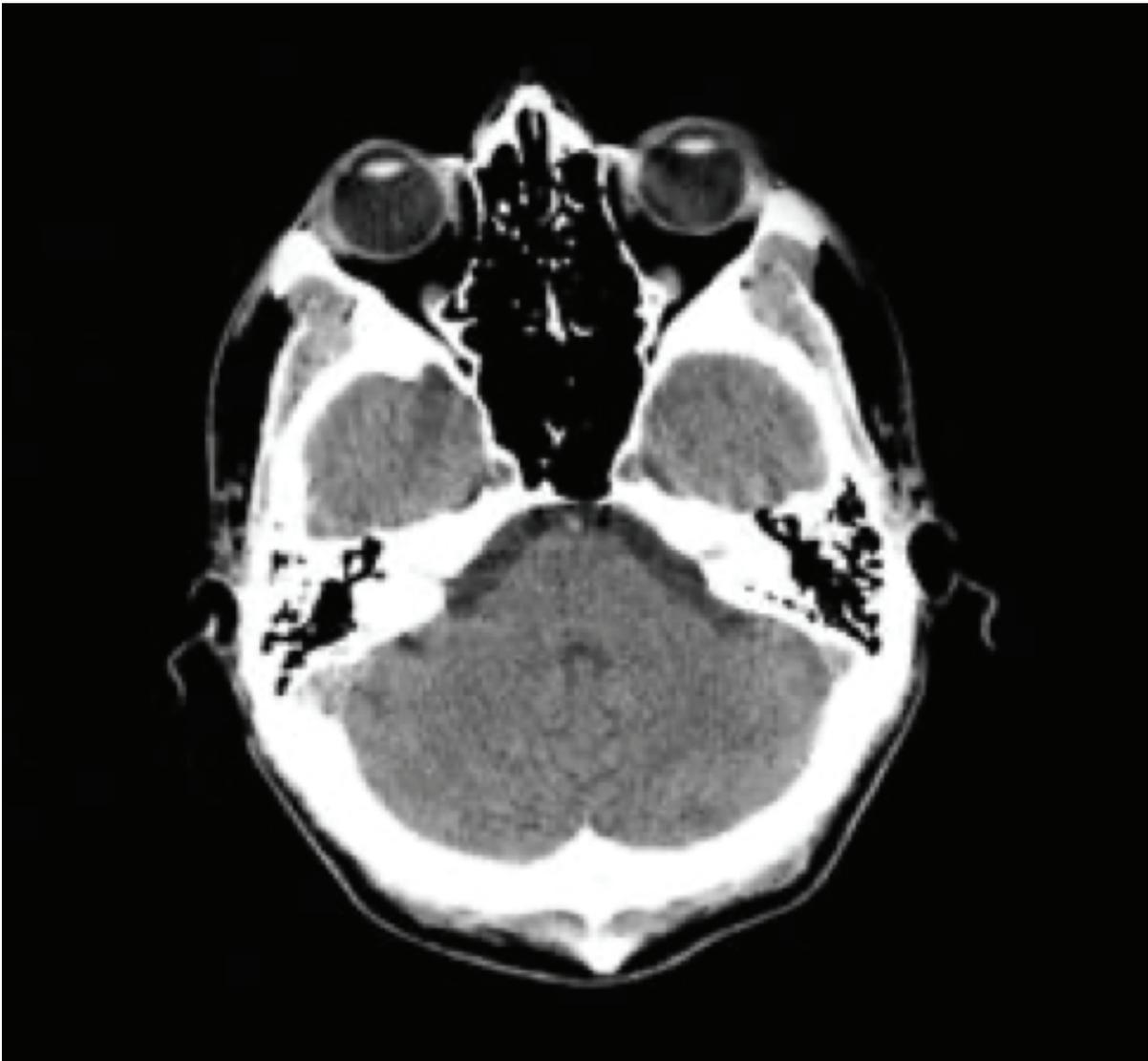


Trainer Resource 5.2: Pictures A-L

A: A CAT scanner



B: Normal CT scan of the head



C: Clinical MRI scanner



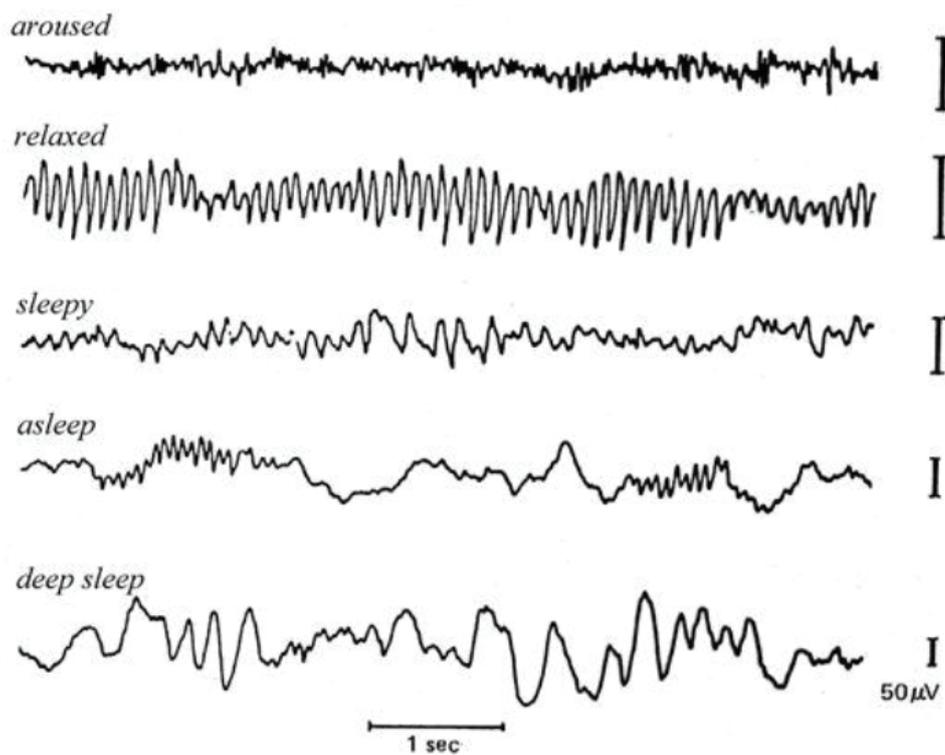
D: Scan of the brain



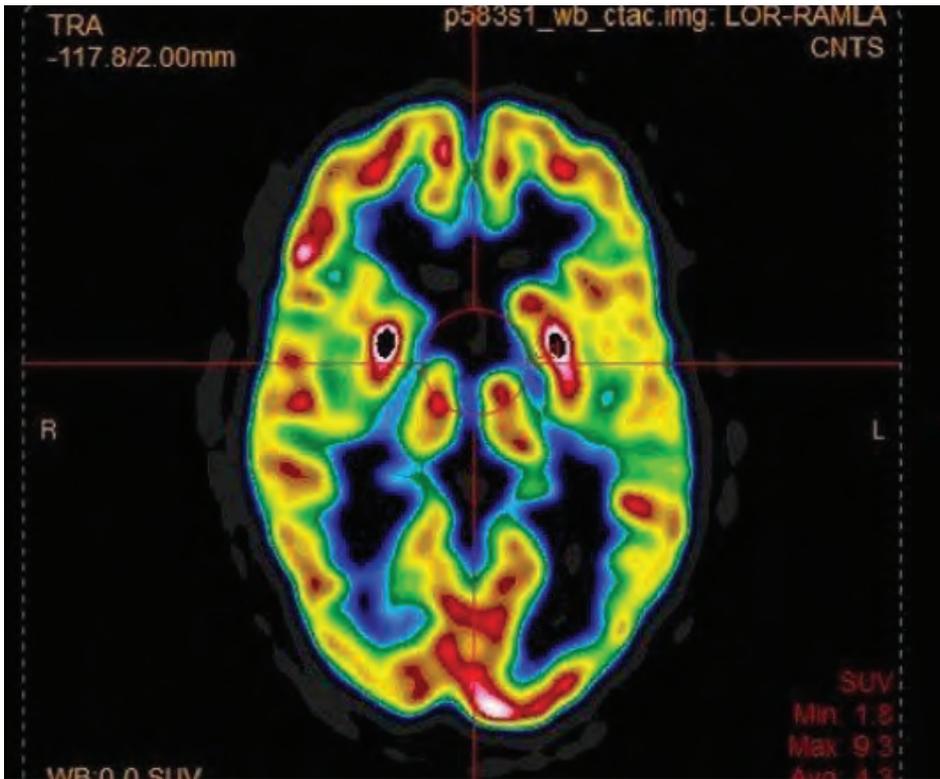
E: EEG with electrodes



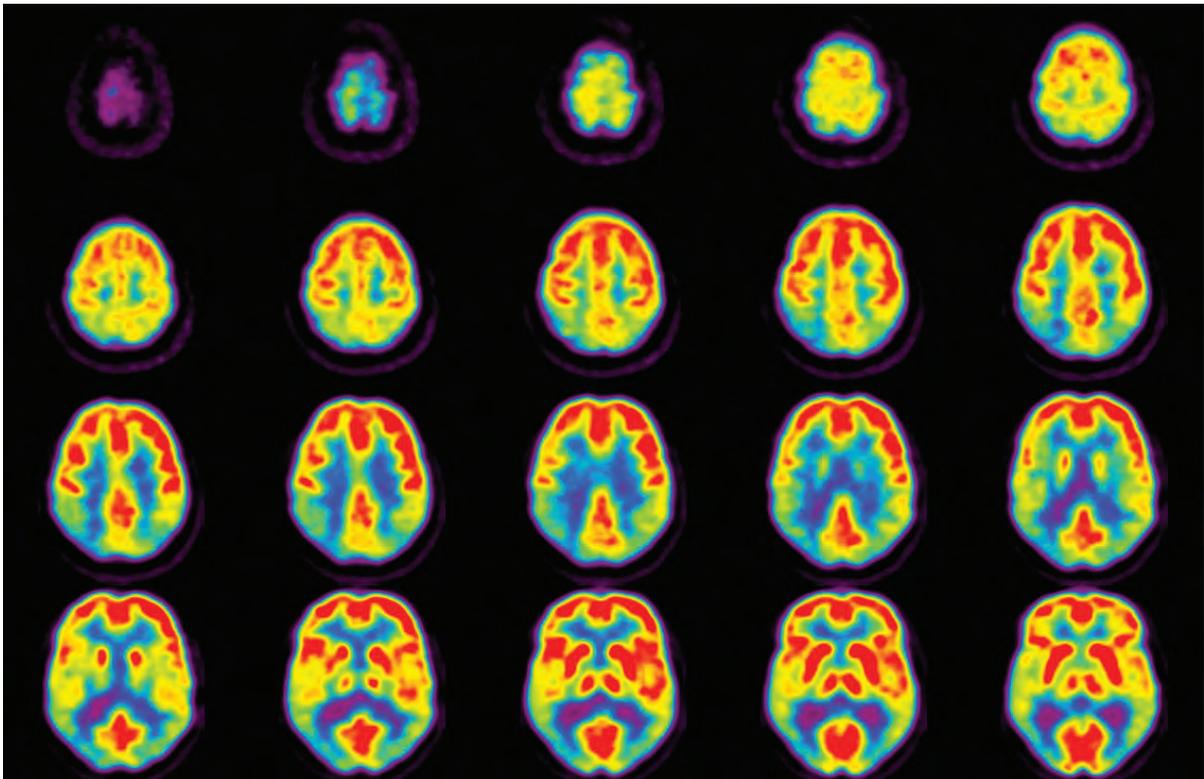
F: EEG signals



G: PET scan of the human brain

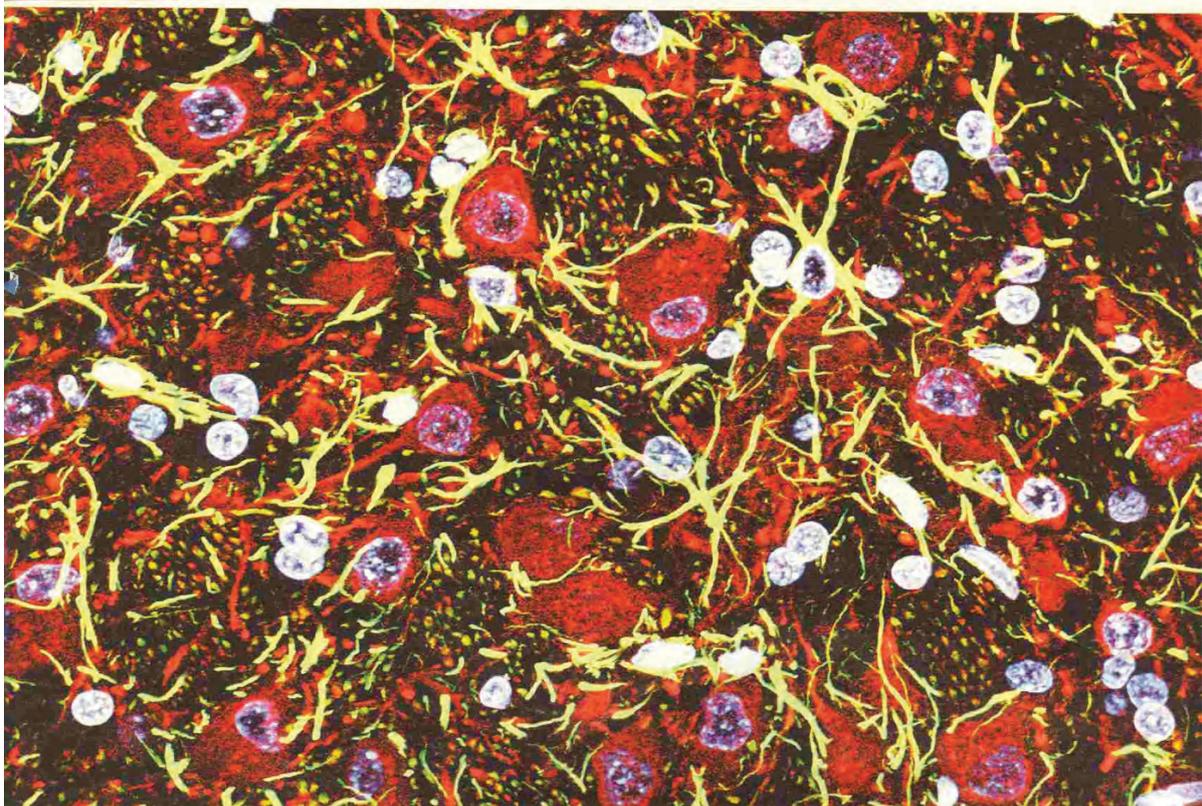


H: The brain aging



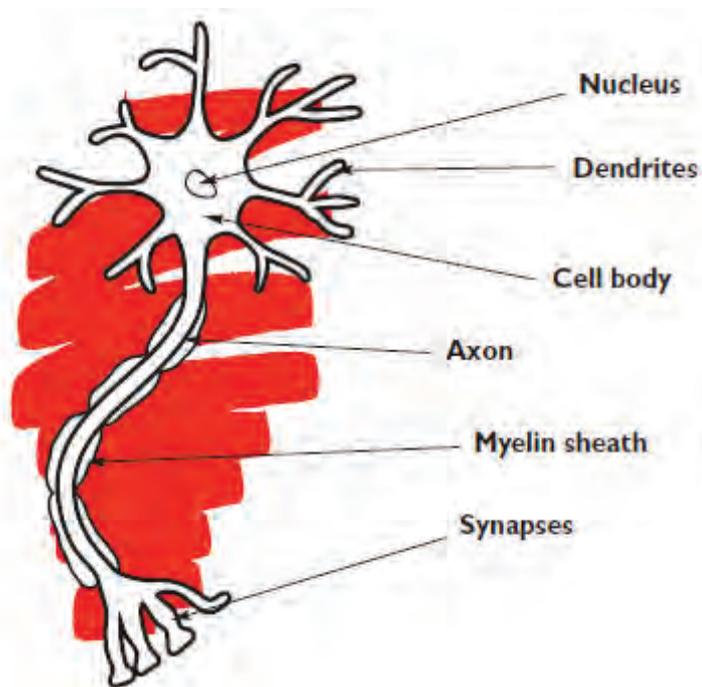
Source: <http://bachlab.pitt.edu/facilities/pet-imaging>.

I: Microscopic photograph showing neurons from the neo-cortex of the brain. Cell nuclei are blue



J: Brain cell or neuron International

Save the Children Alliance (2008)

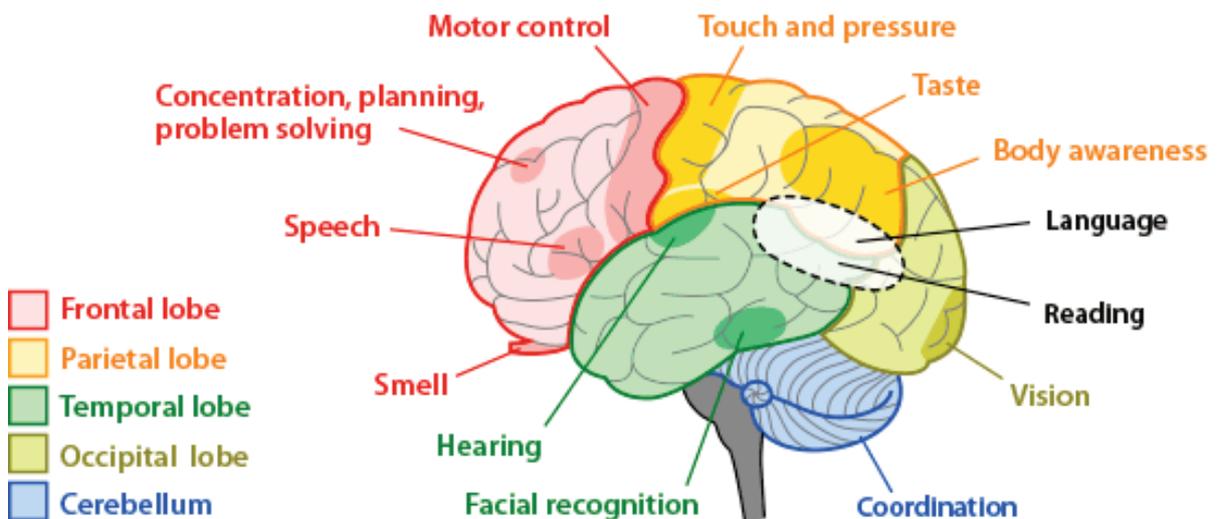


K: Brain cell network



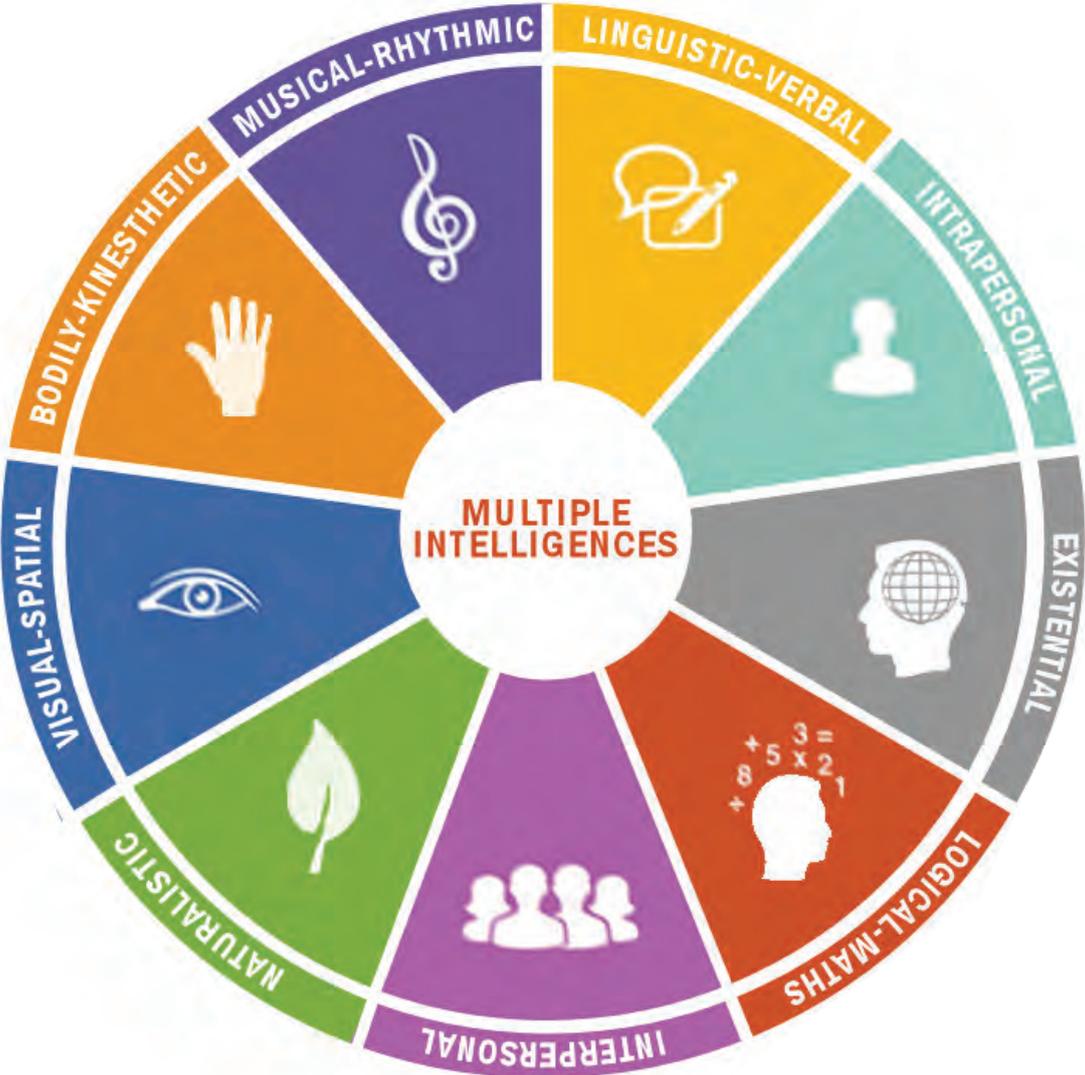
Photo by iStock iLexx

L: Specialised areas of the brain

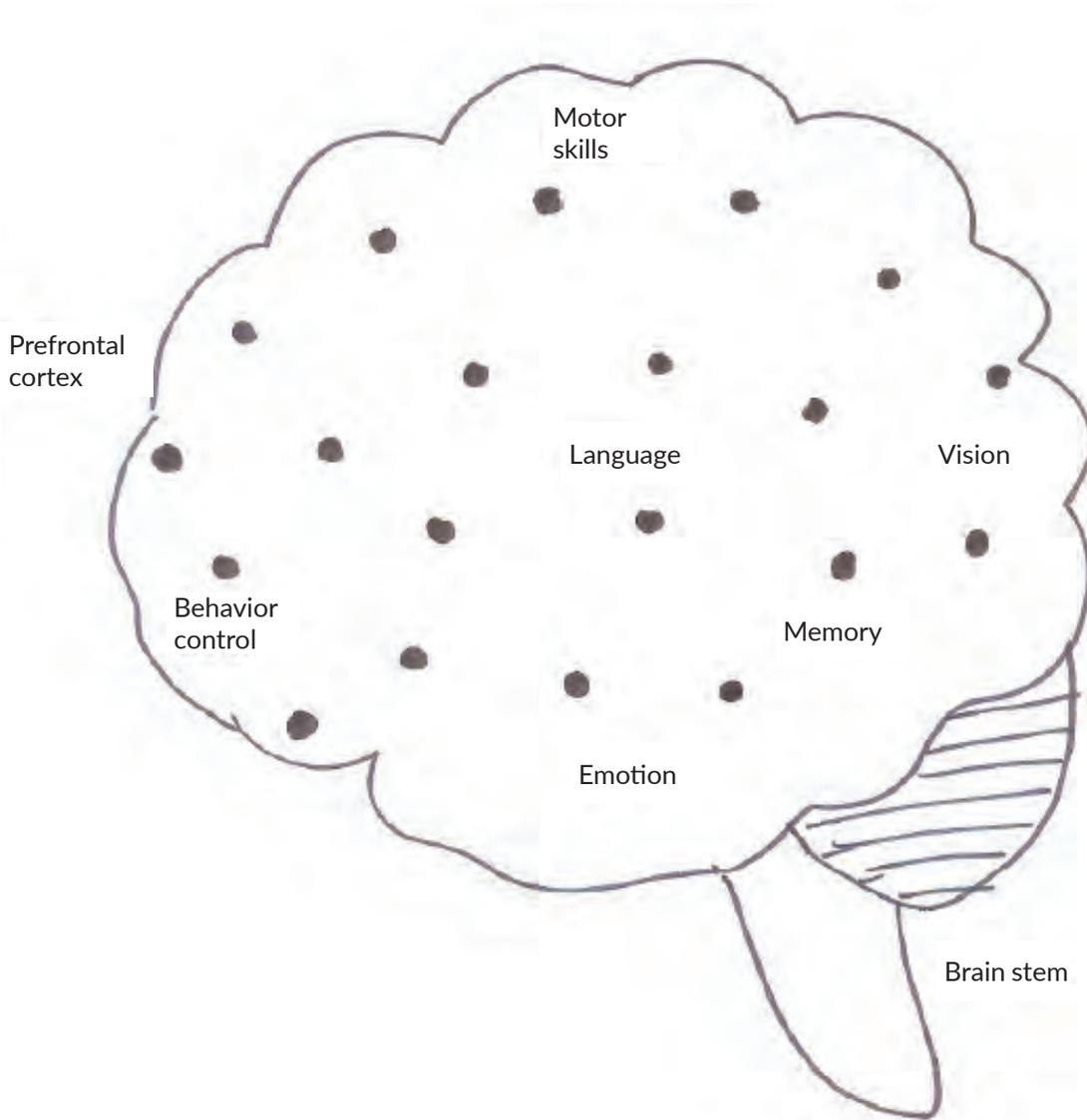


Source: <https://askabiologist.asu.edu/brain-regions>.

Trainer Resource 5.3: Multiple intelligences



Handout 5.1: The brain



Source: <https://hunterswritings.com/2016/03/16/how-to-write-better-using-our-multiple-intelligences/>.

Handout 5.2 Functions of the prefrontal cortex (front of the brain)

The last area of the brain to mature at the front (prefrontal cortex) is responsible for: planning, decision making, focusing our attention, and controlling our emotions and impulses.

Impulse control

- Controlling our impulses helps us set priorities, and resist impulsive actions or responses

Emotional control

- Controlling our emotions helps us recognise and control feelings and responses to feelings

Focusing attention

- Allows us to concentrate on an idea or task for a period of time.

Decision-making

- Helps us to think about the possible outcomes of our actions and choose the action that gives the best result.

Task

1. In your group discuss the function of the front of the brain (prefrontal cortex) you have been given.
2. Discuss the problems that may happen in the classroom.
3. Discuss the problems that may happen within the family, with friends or the community
4. Write your ideas on a flipchart
5. Choose one member of your group to present your ideas.

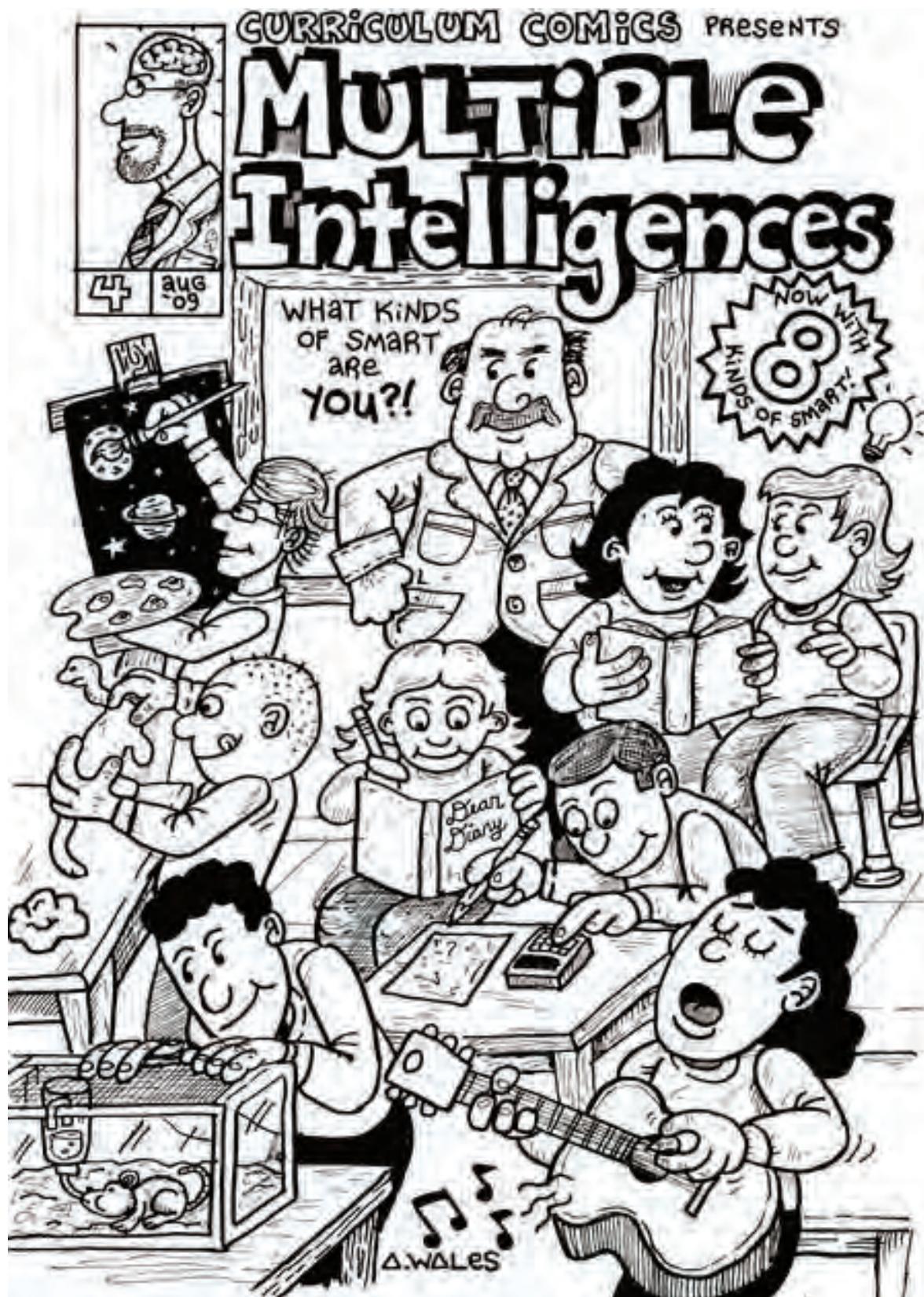
Handout 5.3: Multiple intelligences matching exercise

Read the sentences below and draw a line to correct intelligence.

A. Sensitive to mood and emotion, enjoys rhythm, understands complex organization of sounds, their pitch, tone, and rhythm.	Interpersonal
B. Able to find the right words to express what they mean.	Intrapersonal
C. Understanding living things and reading nature. Sensitive to the natural environment	Verbal-linguistic
D. Likes precision and enjoys abstract and structured thinking. Likes to quantify things and to make hypotheses and prove them	Musical
E. Senses people's feelings and moods. Relates well to others, good mediator, and good communicator	Bodily – Kinesthetic
F. Good at thinking about the world in 3 dimensions. Thinks in pictures and mental images, good with maps, charts, and diagrams	Logical – Mathematical
G. Good at coordinating the mind and body. Skilled at handicrafts, likes to act and touch, good control of objects.	Visual – spatial
H. Understanding of yourself, what you feel and what you want. Self-motivated, high degree of self-knowledge, strong sense of values	Naturalistic
I. Likes to tackle the questions of why we live, and why we die	Existential

Handout 5.4: Multiple intelligence in the classroom

Can you find examples of each multiple intelligence?



Source: <https://iacemyexams.weebly.com/gardners-multiple-intelligences.html>.