

Chapter 24

The Brain



Day One:

Today, you and your child will:

1. Read the text
2. Review the text with your child
3. Complete the student worksheets
4. Collect the materials you will need for days two and three

National Science Education Standards covered this week:

The ability of the brain to manage our thoughts and abilities is controlled by different sections of its structure. The brain can be divided into three unique areas: the cerebrum, cerebellum and the brainstem. Each controls a different part of our mind and body.

A "message system" can be found within each body as well as information is sent through the spinal column which is, in turn, connected to millions of nerves which send chemical messages to and from the brain throughout the entire body.

Definitions

Cerebrum	"suh-ree-brum"; the largest part of your brain that contains four lobes
Right hemisphere	one half of your brain that takes care of your creative abilities
Left hemisphere	one half of your brain that takes care of your problem-solving abilities
Lobes	parts of the hemispheres of your brain
Frontal lobe	this lobe controls your ability to speak, movement, emotions and problems solving
Parietal lobe	"pah-rie-a-tal"; this lobe controls your feelings of pain, pressure, temperature, and touch
Occipital lobe	"ock-sip-it-al"; this lobe controls your sense of vision
Temporal lobe	"tem-poor-al"; this lobe controls your senses of hearing, smelling and your speech
Cerebellum	"sarah-bell-um"; smaller than the cerebrum; helps you to keep your balance and controls all of your reflexes
Reflexes	actions your body goes through without thinking about them
Brainstem	found between your spine and the cerebrum, this part of your brain helps you to breath, swallow, digest food and also controls how fast your heart beats and how it pumps blood through your body
Spinal cord	found inside your spine; helps your brain by sending messages throughout your body
Spine	a long stack of bones that acts to protect your spinal cord
Nerves	small fibers in your body that send messages from your sense organs to your spinal cord

Sample questions to ask your child after completing the weekly reading.

Which part of your brain takes care of your creative abilities? Your problem-solving abilities?

The right hemisphere of your brain controls your creative abilities. The left hemisphere of your brain controls the problem-solving abilities.

What does your brain use to send and receive messages to your sense organs?

Your brain uses the spinal cord to transmit messages through nerves which are connected to your sense organs.

What does your body use to protect the spinal cord?

The spinal cord is protected by a long stack of bones that make up your backbone or spine.

Answers to worksheet questions:

Page 1:

cerebrum
right hemisphere
occipital lobe
temporal lobe
cerebellum
left hemisphere
lobes

brainstem
spinal cord
spine
nerves
frontal lobe
parietal lobe
reflexes

Page 2:

14 - cerebrum
12 - right hemisphere
1 - left hemisphere
2 - lobes
8 - frontal lobe
7 - parietal lobe
6 - occipital lobe

4 - temporal lobe
5 - cerebellum
9 - reflexes
10 - brainstem
11 - spinal cord
3 - spine
13 - nerves

Unit Six Review Answer Key

Fill in the blanks in the story below:

I use my ears to help me stay balanced. These sense organs send messages to my brain with the help of nerves. Before these messages reach my brain they have to travel through my spinal cord.

These sense organs are also used for my sense of hearing. I have four more senses: taste, vision, touch and smell.

Be certain to go over your definitions for the test!

Day Two:

Today, you and your child will:

1. Review Day One using the following text
2. Run the first activity this week

The following text will give you the most important items to review for your activity today.

The information we store in our short term memory can be used to remember seemingly insignificant tasks, such as the location of particular cards in a game of "concentration."

As you increase the number of times you play "concentration", and if you keep the cards in the same position during every game, our minds remember where each card is located as we learn the pattern in each round.

As the child's memory stores this information, the time it takes to find the matches should become much shorter after multiple rounds.

Where did I put that?

Objective:

Children will use a popular game to explore how their brain can learn.

Materials:

ten sets of paired cards with matching faces (have the child make these)

clock or watch with second hand Data chart (see attached)

Procedure:

Arrange the cards face down. You will want to be certain to remember exactly where each card is placed since they will need to be replaced in the same location later in the activity.

Instruct the child to lift two cards at a time and look for the matched pair. If they are not successful with the two cards that were turned over, they are to return them upside down on the table in the same place and try again. If they are successful, they can remove the two cards from the table.

The time for the child to find all of the matches will be recorded.

Once this is completed, place the cards back in the same spot, upside down, and have the child repeat the same procedure at least two more times. Record each round.

Explanation:

If the cards have been placed in the same spot, the child should be able to find the matches much easier in subsequent rounds. This is because our minds remember where each card is located as we learn the pattern in each round. As the child's memory stores this information, the time it takes to find the matches should become much shorter. The child will probably have some difficulty the next day in locating all of the matches. This is because the information they stored in the first day was placed into their short-term memory. A lot of information that is stored in this area is replaced or forgotten much more frequently than our long-term memory.

Where did I put that? Data chart

Trials	Time to find all of the matches
Trial One	
Trial Two	
Trial Three	
Trial Four	
Trial Five	
Trial Six	

Day Three: Lab Activity

Today, you and your child will:

1. Review Day One using the following text
2. Run the first activity this week

The following text will give you the most important items to review for your activity today.

The human mind is associative. This means that as you focus on something hot, warm and/or humid your brain correlates other things that resemble these conditions.

This knowledge is important for everyday occurrences that involve our memory. In short, it is very important to be very observant of what we can actually sense.

Your mind can play tricks on you...

Objective:

Children will explore how easy it is to hear one thing and think about something else.

Materials:

paper and pencil
thesaurus (optional)

Procedure:

Slowly read the following list of words to your child out loud:

Sour	Nice	Candy
Honey	Sugar	Soda
Bitter	Chocolate	Good
Heart	Taste	Cake
Tooth	Tart	Pie

Have your child write down as many words as possible that they can remember from this list.

You may want to repeat this one more time.

Now read to them the words in this next list:

Mad	Wrath	Fear
Happy	Hate	Fight
Rage	Hatred	Temper
Mean	Fury	Calm
Dislike	Emotion	Enrage

Have your child write down as many words as possible that they can remember from this list. You may want to repeat this one more time.

Ask them if they said that the word "sweet" was in the first list. Now ask them if they put the word "angry" in the second list?

It is very likely that they did place these words in their lists, even though they are not in there.

For an extra challenge, have the child create their own word association/memory game by using a thesaurus.

Explanation:

Most people mistakenly place the words "sweet" and "angry" in these lists because our minds honestly believe they are there. Our memory is associative, which means that if you are thinking about one thing, your mind may start thinking about related things that are similar. For example, a person will probably associate candy, honey and sugar with something sweet. Therefore, the memory of things that are sweet is so strong within a person's mind that they believe this word was a part of the original list.

Test: Unit 6

Chapters 2-1-24

Match the words in the second column to the best available answer in the third column. Place the correct number on the blank line.

_____	External senses	1) an organ that controls your body
_____	Internal senses	2) small fibers in your body that send messages from your sense organs to your spinal cord
_____	Sense organs	3) types of feelings we receive inside our body like hunger and thirst
_____	Pupil	4) three curved tube in the ear that are filled with fluid and help to keep you balanced
_____	Spinal cord	5) the largest part of your brain that contains four lobes
_____	Nerve endings	6) feelings that tell us what is going on outside of our body
_____	Nerves	7) the black "dot" in the eye
_____	Brain	8) areas of the skin that sense the feelings of heat, pressure, pain, and taste
_____	Canals	9) organs such as eyes
_____	Iris	10) a plant's ability to sense and grow towards light
_____	Cerebrum	11) the colorful portion of the eye that changes the size of the pupil
_____	Phototropism	12) found inside the spine; helps the brain by sending messages throughout the body

Which one is right? Circle the correct answer.

1. Your nose hair is used to...

- a) keep your nose warm
- b) block things from getting into your body
- c) help you taste your food

2. What helps to spread food all over your tongue?

- a) saliva
- b) teeth
- c) a spoon

3. During the brightest part of the day, your pupil will get...

- a) larger
- b) smaller
- c) the same size as during the night

4. Nerve endings cause you to feel pain in your...

- a) hands
- b) fingernails
- c) hair

5. Examples of our internal senses include...

- a) vision, taste and hearing
- b) touch, balance and hunger
- c) hunger, thirst and balance

6. The part of your brain that controls your reflexes is the...

- a) cerebrum
- b) cerebellum
- c) brain stem

Test: Unit 6

Answer Key

Matching

6 external senses
3 internal senses
9 sense organs
7 pupil
12 spinal cord
8 nerve endings

2 nerves
1 brain
4 canals
11 iris
5 cerebrum
10 phototropism

Multiple choice

1. b
2. a
3. b
4. a
5. c
6. b

Write a story...

Your ears control your sense of balance. Inside your ear you have three little curved tubes called canals which are full of liquid and contain tiny little hairs in them. Every time you move your head, the liquid moves as well. The moving liquid makes the little hairs move too. So whenever these hairs move, a new message is sent to your brain. When you lose your balance your canals send a message to the brain for your body to move backwards or forwards...wherever you need to go to stand straight up.