NATIONAL EDITION

CLASSROOM READY

SEPTEMBER 2023

Science News

FOR GRADES 3, 4 & 5

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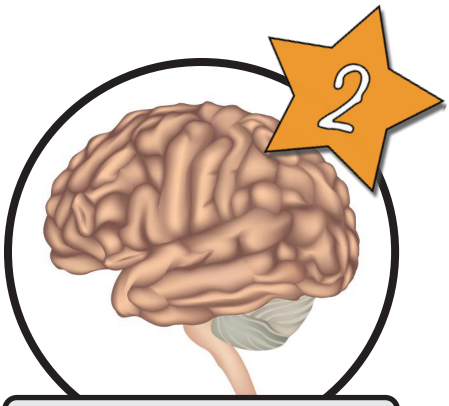

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LAUGHTER

If you are like most people, you probably laugh at least once or twice a day. Laughter can make you feel good, but it also helps with keeping your physical, mental, and **emotional** health balanced. It can even improve your relationships.

Scientists think that laughter developed as a way for people to connect with each other. It was a way for people to show that they were friendly and playful, and not dangerous. People often laugh when someone tickles them, when they play, or when they see or hear something funny. Being in a good mood can make them laugh at almost anything.

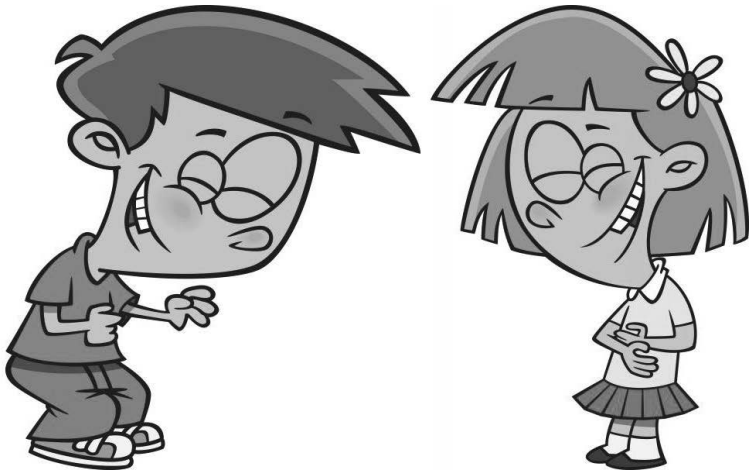
Laughing involves a few **stages**. Scientists believe that a part of the brain called the frontal lobe helps the brain understand the information coming in through the senses, like hearing and sight. If the brain decides that the sound or image is funny, it **triggers** a response in the area that controls feelings. Then this area **prompts** a reaction like giggling, chuckling, or laughing loudly. This sends pain-killing chemicals called endorphins around the body, making people feel good. Laughing also sends more oxygen through the body, helping it to function better.

People's ideas of what is funny can vary widely. Many people find physical humour funny, such as when someone falls over a chair. Others prefer humour involving words or situations, such as seeing

videos of animals doing funny things or listening to people telling amusing stories.

Culture, language, and age are a few factors that **influence** laughing. Babies start to laugh at about four months. People sometimes laugh for the wrong reasons, and diseases like **dementia** can affect their sense of humour.

Normally, laughter is a good way for people to become more relaxed. Laughter is one of the easiest ways we have of improving our health and wellbeing.



Emotional: Having to do with your feelings

Stages: A step, level, or point in a process

Triggers: Causes something to happen immediately

Prompts: Moves someone to action

Influence: To have an effect on someone or something

Dementia: A mental illness that makes people lose the ability to think clearly and often leads to personality changes

LAUGHTER QUESTIONS

1. Scientists think that laughter developed as a way for people to do what?

   _____

2. Laughter was a way for people to show that they were _____

   _____, and not dangerous.

3. When do people laugh?

   _____

   _____

4. Scientists believe that a part of the brain called the _____

   _____ helps the brain understand the information coming in through the senses, like hearing and sight.

5. If the brain decides that the sound or image is funny, it triggers a response in the area that controls _____.

6. This area prompts what kind of reaction?

   _____

7. Many people find _____ humour funny, such as when someone falls over a chair.

8. _____ are a few factors that influence laughing.

WHAT MAKES YOU LAUGH?

Think about the things that make you laugh. Do you like knock-knock jokes? Is there a show you enjoy? Make a list below of the things that make you laugh. Over the next few days, add to the list after you find yourself laughing.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

THE CENTRAL NERVOUS SYSTEM

When you blink, walk, speak, or even breathe, your central nervous system keeps everything working properly. This system is very delicate and can be easily damaged, but when it is healthy, the central nervous system has amazing abilities.

The central nervous system is a group of **nerve** tissues making up the brain and the spinal cord. The brain controls **voluntary** actions such as waving a hand or thinking, but also **involuntary** actions like breathing or blinking. **Reflex** actions like when you pull your hand away from a hot stove and even emotions come from the brain.

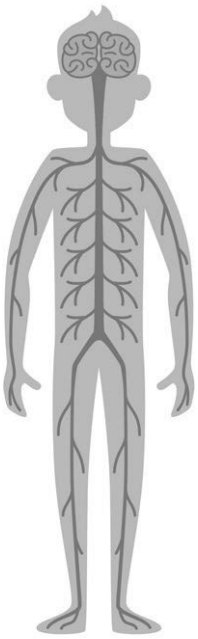
When the brain sends out a message to walk or react to a hot stove, the spinal cord carries the message to the right body part. It also carries messages back to the brain to say if an object is hot or cold, or if it is too heavy to lift. Without the spinal cord, we would be helpless.

The brain is protected by the skull and the spine is covered by bones called vertebrae that help to keep it safe. Still, injuries or illnesses can damage the two parts of the central nervous system. Accidents can damage the brain or cut the spinal cord. People can become **paralyzed** for life after these types of accidents.

Illnesses can also cause temporary or permanent damage. For example, an infection called **meningitis** can badly damage the brain. The brain or spinal cord can develop tumours or be badly formed

from birth.

Cells in the central nervous system never regrow. Because of that, damage to the brain and spinal cord is usually permanent. Sometimes the brain can find new connections to perform the same task, like writing with a different hand. The central nervous system has some amazing abilities!



Nervous system

Nerve: One of the threads that sends messages between your brain and other parts of your body

Voluntary: Controlled by the will

Involuntary: Done without a person's control

Reflex: An automatic action or movement that happens without a person's control or effort

Paralyzed: Unable to move or feel a part of the body

Meningitis: A serious disease in which an outside layer of the brain or spinal cord becomes infected and swollen

THE CENTRAL NERVOUS SYSTEM QUESTIONS

1. The central nervous system is a group of _____ tissues making up the brain and the spinal cord.

2. The brain controls voluntary actions such as what?

   _____

3. The brain also controls involuntary actions like _____

   _____.

4. When the brain sends out a message to walk or react to a hot stove, the _____ carries the message to the right body part.

5. The brain is protected by the _____ and the spine is covered by bones called _____ that help to keep it safe.

6. What can damage the two parts of the central nervous system?

   _____

7. Cells in the central nervous system never _____.

8. Damage to the brain and spinal cord is usually _____.

VOLUNTARY OR INVOLUNTARY

Your brain controls the messages that are sent to your muscles. It controls both the voluntary and involuntary muscle movements.

Voluntary muscles are the ones that you can control. Most of them move your bones around. When you run, walk, ride a bike, wave your arms around, or eat your favourite sandwich, your voluntary muscles move your arms, legs, and body.

Involuntary muscles don't need the brain to send them messages. They know their job and they keep doing it. The following are examples of involuntary muscle movements:

The muscles in your heart keep blood pumping round your body.

The muscles in your digestive system that move food down to your stomach.

The tiny muscles at the bottom of the hairs on your arms that make your hairs stand up when you are cold or suddenly feel scared.

On the next page, label the muscle movement that goes with each activity with a "V" if it is voluntary and an "I" if it is involuntary.

_____ Pedalling a bike

_____ Eye pupil adjusting to the light

_____ Waving goodbye

_____ Winking

_____ Heart beating

_____ Breathing

_____ Kicking a ball

_____ Sneezing

_____ Yawning

_____ Picking an apple from a tree

_____ Flexing of the ear drum

_____ Writing your name

_____ Jumping over a log

_____ Stomach growling

_____ Blinking

WILDFIRES

This year, the news has been full of fires in British Columbia, Nova Scotia, and other parts of the world. Wildfires can be very destructive and people need to stop them, but fires also have many benefits for the health of forests and the surrounding areas.

A wildfire is any fire that is large and uncontrolled, often happening in forests and other natural areas. By the middle of August 2023, about 5500 wildfires had already burned over 13 **hectares** of land in Canada. The average amount is around two hectares per year, and the previous record was over seven and a half hectares in 1989. Besides destroying many trees and forcing many people to leave their homes, the fires have released large amounts of **carbon dioxide** into the air, increasing the amount of pollution in the atmosphere.

Wildfires can start from several different causes. Some start when lightning strikes in a forest and the trees start to burn. Others start by accident, such as when campers forget to put out their fires properly. Some are caused on purpose by **arsonists** or firefighters.

Firefighting methods depend on the location and the landscape. Sometimes, firefighters start fires to get rid of the leaves and other fuel that could keep a fire burning. They also drop water or

fire **retardant** on the flames from airplanes. Firefighters sometimes run hoses from lakes or streams to where the fire is burning, depending on what is needed.

Despite the destruction they cause, wildfires have some benefits. Certain plants, such as jack pines, cannot release their seeds without the heat of a fire. A fire also can help to clear out dead leaves and trees and allow new plants to grow. Fires release **nutrients** into the soil and open the forest for sunlight.

To view videos, go to:
http://resources.dynamic-classroom.ca/books/gzgg

Video

Hectare: A unit of area in the metric system is equal to 10 000 square metres or about 2.5 acres

Carbon dioxide: A gas that is a mixture of carbon and oxygen, with no colour or odour

Arsonist: Someone who sets fires on purpose to destroy property

Retardant: Able to slow down the progress or development of something

Nutrient: A substance such as a protein, mineral, or vitamin that is needed by people, animals, and plants to stay strong and healthy

WILDFIRES QUESTIONS

1. What is a wildfire?

   _____

   _____

2. By the middle of August 2023, about _____ wildfires had already burned over 13 hectares of land in Canada.

3. The fires have released large amounts of _____

   _____ into the air, increasing the amount of pollution in the atmosphere.

4. Some wildfires start when _____ strikes in a forest and the trees start to burn.

5. Other wildfires start by accident, such as when _____ forget to put out their fires properly.

6. Why do firefighters sometimes start fires?

   _____

7. Firefighters also drop water or fire retardant on the flames from

   _____.

8. Certain plants, such as jack pines, cannot release their _____ without the heat of a fire.

2022 WILDFIRES

The table below shows how many wildfires were recorded in 2022 for every province and territory. It also shows how many were started naturally and how many humans started.

Region	Natural	Human	Total
Alberta	480	801	1281
British Columbia	1200	575	1775
Manitoba	172	52	224
New Brunswick	5	209	214
Northwest Territories	227	35	262
Nova Scotia	3	149	152
Ontario	88	187	275
Prince Edward Island	0	2	2
Quebec	26	406	432
Saskatchewan	206	239	445
Yukon	240	55	285

Use this information to answer the questions on the next page.

1. How many fires did Alberta have?

_____

2. How many fires did New Brunswick have?

_____

3. How many fires were started by humans in Saskatchewan?

_____

4. How many fires started naturally in British Columbia?

_____

5. How many fires were there in Prince Edward Island?

_____

6. Which province had the highest number of fires?

_____

MOISTURE IN THE AIR

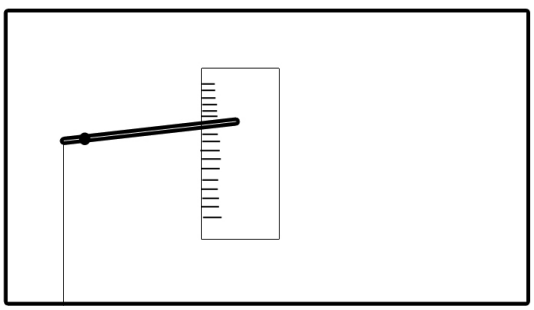
Air might not feel wet, but it does contain moisture. Moisture in the air is called "humidity." The humidity in the air is constantly changing.

Materials:

- Straw
- Ruler
- Tape
- Map pins
- Modeling clay
- Pen
- White card
- Cork board

Steps:

1. Draw a scale on the white card, marking it at 2 millimetre intervals. Pin the card to the cork board.
2. Push a pin through the straw close to one end. Pin the straw to the board, so that the long end points to the middle of the scale.
3. Press some modeling clay into the short end of the straw. Use just enough clay to balance the straw when the board is upright.
4. Get an adult to carefully cut a hair from your head.
5. Tape one end of the hair to the short end of the straw and the other end to the board's frame. Stand the board upright.
6. In the dry air, the hair shrinks and pulls the straw up the scale. In moist air, the hair expands and the straw falls down the scale.



ANSWER KEY

LAUGHTER

1. Scientists think that laughter developed as a way for people to do what? **Connect with each other**
2. Laughter was a way for people to show that they were **friendly and playful**, and not dangerous.
3. When do people laugh? **When someone tickles them, when they play, or when they see or hear something funny**
4. Scientists believe that a part of the brain called the **frontal lobe** helps the brain understand the information coming in through the senses, like hearing and sight.
5. If the brain decides that the sound or image is funny, it triggers a response in the area that controls **feelings**.
6. This area prompts what kind of reaction? **Giggling, chuckling, or laughing loudly**
7. Many people find **physical** humour funny, such as when someone falls over a chair.
8. **Culture, language, and age** are a few factors that influence laughing.

THE CENTRAL NERVOUS SYSTEM

1 The central nervous system is a group of **nerve** tissues making up the brain and the spinal cord.
2. The brain controls voluntary actions such as what? **Waving a hand or thinking**
3. The brain also controls involuntary actions like **breathing or blinking**.
4. When the brain sends out a message to walk or react to a hot stove, the **spinal cord** carries the message to the right body part.
5. The brain is protected by the **skull** and the spine is covered by bones called **vertebrae** that help to keep it safe.
6. What can damage the two parts of the central nervous system? **Injuries or illnesses**
7. Cells in the central nervous system never **regrow**.
8. Damage to the brain and spinal cord is usually **permanent**.

VOLUNTARY OR INVOLUNTARY

Involuntary:

Eye pupil adjusting to the light
Heart beating
Breathing
Sneezing
Yawning
Flexing of the ear drum
Stomach growling
Blinking

Voluntary:

Pedalling a bike
Waving goodbye
Winking
Kicking a ball
Picking an apple from a tree
Writing your name
Jumping over a log

WILDFIRES

1. What is a wildfire? **Any fire that is large and uncontrolled, often happening in forests and other natural areas**
2. By the middle of August 2023, about **5500** wildfires had already burned over 13 hectares of land in Canada.
3. The fires have released large amounts of **carbon dioxide** into the air, increasing the amount of pollution in the atmosphere.
4. Some wildfires start when **lightning** strikes in a forest and the trees start to burn.
5. Other wildfires start by accident, such as when **campers** forget to put out their fires properly.
6. Why do firefighters sometimes start fires? **To get rid of the leaves and other fuel that could keep a fire burning**
7. Firefighters also drop water or fire retardant on the flames from **airplanes**.
8. Certain plants, such as jack pines, cannot release their **seeds** without the heat of a fire.

2022 WILDFIRES

1. How many fires did Alberta have? **1281**
2. How many fires did New Brunswick have? **214**
3. How many fires were started by humans in Saskatchewan? **239**
4. How many fires started naturally in British Columbia? **1200**
5. How many fires were there in Prince Edward Island? **2**
6. Which province had the highest number of fires? **British Columbia**