مدارس المنهل
Al Manhal Schools
تأسست 1404

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Science Revision

Grade: 4

Attractive .. Pioneering Schools ... Shaping a Creative Generation

Pull and Push Vocabulary Words

Complete the sentences using appropriate words from the box.

force	opposite	size	direction
push	pull	motion	stationary

1) A _Pull_ is a force that makes an object move closer to us.

2) A _Push_ is a force that makes an object move away from us.

3) The amount of energy required to move an object depends on its _size_.

4) We say an object is _Stationary_ when it stays in one place without moving.

5) _Direction_ is the path along which someone or something moves.

6) The major difference between the pull and push forces is that they act in _Opposite_ directions.

7) _Force_ causes an object to speed up, slow down, stay in one place, or change the direction or shape.

8) A push or pull can start or stop the _Motion_ of an object.

Science

Grade 4

Summary For Lesson 1

Question 1: Use the words:

(Force, Gravity, Friction, Speed, Velocity)

1. A car changes its _Velocity_ when it turns around a corner.
2. When you kick a ball, you are using a _Force__
3. The force that pulls an apple down from a tree is called _Gravity__.
4. Shoes with good grip create more _Friction__ on slippery floors.

Question 2:

If a cheetah runs 100 meters in 5 seconds, Calculate the speed
100 / 5= 20m/sec

Question 3: What Happens? Circle the Correct Answer

1. What happens if there's no **friction** when you're walking on ice?
   A. You run faster
   B. You slip and fall
   C. You jump higher
2. What happens when you throw a ball up in the air?
   A. It keeps going forever
   B. It floats
   C. It comes back down because of gravity
3. What happens if you're riding a bike and stop pedaling?
   A. You keep moving forever
   B. You slow down because of friction and air resistance
   C. You go faster

Question 4:

Give a Reason - Write Your Answer

1. **Why do you slow down when running against the wind?**

   Because of air resistance

2. **Why do things fall to the ground when you drop them?**

   → Due to the gravity

3. **Why is it harder to push a heavy box than a light one?**

   → Because it needs more force

4. **The engineers make trains or metros with streamline shaped**

   To decrease the air resistance and go fast

Question 5:

Bonus: True or False

Write **True** or **False** next to each sentence.

1. F ____Gravity pulls things up.
2. T ____Inertia means objects like to keep doing what they are doing.
3. T ____Air resistance can slow down falling feathers.
4. F ____Speed is the same as velocity.
5. T ____Friction helps you walk without slipping.

Part 1: Definitions - Match the Word to Its Meaning

Speed C	**A.** A push or pull that can make something move.
Velocity f	B. The way air slows down moving objects.
Gravity D	C. is How Fast or slow the object move
Friction G	**D.** The force that pulls things down to Earth.
Air resistance B	**E.** When something keeps moving or stays still unless a force changes it.
Inertia E	**F.** How fast and in what direction something is moving.
Force A	**G.** A force that happens when two things rub together and slows things down.

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Potential and Kinetic Energy Worksheet - Grade 4

Question 1: Choose the Correct Answer

Circle the correct answer.

1. Which of the following is an example of **kinetic energy**?
   a) A book on a shelf
   b) A boy running
   c) A chair in a room
   d) A ball on the floor

2. Which object has the most **potential energy**?
   a) A ball at the top of a hill
   b) A ball rolling down a hill
   c) A ball on the ground
   d) A flying bird

3. When a swing is at its **highest point**, it has:
   a) Only kinetic energy
   b) Only potential energy
   c) No energy
   d) Electric energy

Question 2: What Will Happen If...?

Answer the questions in a full sentence.

4. What will happen if you drop a ball from a high place?
   → → _____Potential Energy change to kinetic energy

5. What will happen if you push a toy car on a ramp?
   → Potential Energy change to kinetic energy

Question 3: Give a Reason

Answer the questions and explain why.

6. A child rides a bike fast. Why does the child have kinetic energy?

   → _____Because if the speed is more, the kinetic energy going to be more

7. A rock is sitting on the edge of a cliff. Why does it have potential energy?

→ ___Because if the height increases the potential energy increases.

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Question 4: Complete the Sentence

Fill in the blanks with the correct word:
(*kinetic, potential, moving, stored*)

8. Kinetic energy is the energy of something that is moving.
9. Potential energy is the _____stored_____energy in an object.
10. When a skateboarder goes down a ramp, their potential energy changes into _____Kinetic_____energy.
11. A stretched rubber band has Potential energy.

Question 5: Write the Scientific Term

Write the correct scientific term for each description:
(*Choose from: Potential Energy - Kinetic Energy*)

1. The energy an object has because it is moving.
   → _____Kinetic_____
2. The energy an object has because of its position or shape.
   → _____Potential_____
3. A ball rolling on the floor.
   → _____kinetic_____
4. A stretched bow ready to shoot an arrow.
   → → _____Potential_____
5. A person jumping rope.
   → _____Kinetic_____

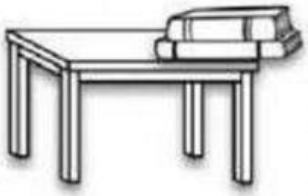
Bonus Question (Challenge!)

Describe an example from your life where you used both kinetic and potential energy.
→ _when we were setting the class and we used the stairs to go down

Kinetic or potential energy?

NAME: _____

1. WRITE THE TYPE OF ENERGY THAT IS BEING SHOWN

A BALL ROLLING.  Kinetic Energy	A SODA TIN NOT OPENED.  Potential Energy	A BOY THROWING A BALL.  Kinetic Energy
A BALL BEFORE BEING KICKED.  Potential Energy	A CAR MOVING.  Kinetic Energy	BOOKS ON THE TABLE  Potential Energy

2. WHAT IS THE POTENTIAL ENERGY?

Potential Energy: is energy stored in the objects due to work done on it.

3. WHAT IS THE KINETIC ENERGY?

Kinetic Energy : is the Energy during the motion .

LIVEWORKSHEETS

Grade 4 Science Worksheet

Topic: Collisions, Energy Transfer s Conservation of Energy

Let's Learn First!

1. What is a Collision?

A **collision** happens when two things bump into each other. Like when toy cars crash!

2. What is Energy Transfer?

Energy moves from one object to another. When you kick a ball, your energy goes into the ball to make it move.

3. What is Conservation of Energy?

Energy **cannot be created or destroyed**. It only moves or changes form. This is called the **Conservation of Energy**.

Part 1: Vocabulary Match!

Match the word to its meaning:

A	B
1. Collision	a. Moving energy from one object to another
2. Energy Transfer	b. Energy cannot be made or lost, only moved or changed
3. Conservation of Energy	c. When two things hit or bump into each other

Your answers:

1 - C__
2 - A__
3 – B

Part 2: Fill in the Blanks

Use these words to fill in the blanks:
(conservation, collision, transfer)

1. When two marbles hit each other, it is a Collision ____.
2. When you throw a ball, you _____transfer_____ energy to the ball.
3. Energy moves from one object to another. That is called energy conservation ___.

Part 3: Choose the Correct Answer

Circle the correct answer.

1. What happens in a collision?
   a. Objects move apart without touching
   b. Two objects bump into each other
   c. One object disappears
2. When you roll a ball and it hits another ball, energy is:
   a. Lost
   b. Created
   c. Transferred
3. Conservation of energy means:
   a. Energy disappears when used
   b. Energy moves or changes but does not go away
   c. Energy only works in machines

Part 4: Give a Reason

1. Why does a ball roll when you push it?
   Reason: Because of the energy transfer from my hand to the ball.
2. Why does a toy car stop after a while even if no one touches it?
   Reason: Due to the Friction
3. Why is energy important in everyday life?
   Reason: To do our daily activities _____

Part 5: What Happens?

1. You roll a ball into a block. What happens to the block?
   What happens: it will stop
2. You drop a ball, and it bounces. What happens to the energy?
   What happens: It collides, so the energy transfer
3. You and your friend push toy cars toward each other. What happens when they collide?
   What happens: So, the energy transfer between them._____

Part 7: True or False

Write T for True or F for False.

1. F Energy disappears when things stop.
2. T A bouncing ball shows energy changing form.
3. F You can see energy moving with your eyes.
4. T Energy can be transferred from one object to another

Bonus Question!

What are some ways you use energy every day?

When we go to school, when we walk, run. Opening the door, Watching tv or turning on the light even if we are sitting

Student Name: _____ Date: _____

Lesson Check: Energy Transfer in Collisions

1) Which is not an example of a collision causing energy transfer and change in motion?

- ○ a bat strikes a baseball
- ○ a catcher catches a baseball
- ○ a baseball hits the ground
- ○ a baseball flies through the air

2) Fill in the blanks using the available answer choices.

_____Energy_____ is transformed or transferred; it cannot be made or destroyed.
(Blank 1)

Blank 1 options

- Energy
- Momentum

3) During a collision, some energy can be transferred into Heat ___or sound.

- ○ force
- ○ heat
- ○ electricity
- ○ conservation

4) Friction during a collision causes some kinetic energy to be changed into Heat __.

- ○ heat
- ○ electricity
- ○ potential energy
- ○ chemical energy

Student Name: _____ Date: _____

Lesson Check: Energy Transfer in Collisions

5) Fill in the blanks using the available answer choices.

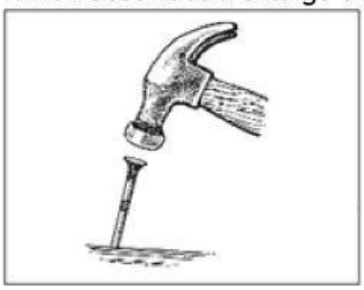
The collision of two marbles can cause the motion _____of both marbles to change.

(Blank 1)

Blank 1 options

- energy
- motion

6) Which describes a change that will likely occur in the collision below?

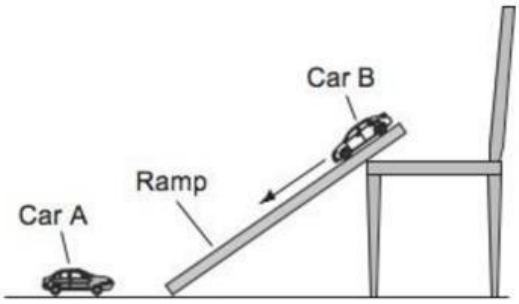


- ○ Kinetic energy will be transferred from the nail to the hammer, causing the hammer to move.
- ○ Kinetic energy will be transferred from the hammer to the nail, causing the nail to move.
- ○ Potential energy will be transferred from the nail to the hammer, causing no change in motion.
- ○ All of the kinetic energy will transform into light energy and no change in motion will occur.

Student Name: _____ Date: _____

Lesson Check: Energy Transfer in Collisions

7) Mason built a ramp. He put car A at the bottom of the ramp and released car B from the top of the ramp, as shown.



a. Predict **two** things that Mason will likely observe when car A and car B collide.

The two cars will crashes and the energy will transfer

b. Describe **two** energy transfers that happen when car A and car B collide.

Kinetic Energy transfer between two car and due to the collision , it will be heat Energy