



Science 4 **Microlearning Module**

QUARTER 3 – Module 9

Objects Can Affect Other Objects





REGION XII - DIVISION OF SULTAN KUDARAT

Science 4 Microlearning Module (MLM) Quarter 3 – Module 9: Objects Can Affect Other Objects First Edition, 2024

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MICROLEARNING MODULE

Name:	Grade & Sec:	Score:
Subject: <u>Science 4</u>	Quarter: <u>3</u>	MLM No. <u>9</u>
Teacher:		
Learning Competency: The affect other	learners identify example objects even when the	es of how objects can
with each of	ther, such as magnets attr	acting other objects,
light from t noises hurti	he sun affecting our eyes ng our ears.	, and skin, and loud

Object Can Affect Other Objects

A. Look Back!

Directions: Identify which items from the given set of objects have properties that allow them to be attracted towards or pulled by magnets. Write your answer on a separate sheet of paper.



rubber slippers

paper

nails

B. What's New?

You already know that magnets attract certain objects. Magnets have north and south poles where the opposite poles attract each other.

Objects can affect other objects even when they are not in contact. These are through different types of forces such as magnetism, light, and sound. The world around us is full of fascinating phenomena where objects can influence other things without even touching them.

Think about how a simple refrigerator magnet can cause a paperclip to rise, or a large horseshoe magnet can attract a nail from across the room. Magnets use an invisible force field to pull on certain metals.

Have you ever stepped out into bright sunlight and had to open your eyes? That's the sun's powerful light rays affecting your eyes, even though the sun is over 90 million miles away!

Loud sounds are another example. When an ambulance blares its horn, you can feel the booming noise vibrating in your ears, even though the ambulance never made contact.

These are just a few mind-bending examples that show objects don't always need direct contact to impact other things around them. Today, we'll explore more of these action-at-a-distance events and the remarkable unseen forces that make them happen.

Illustration	Question	
A.Magnet attracting each other without physical contact	What do you observe in the illustration?	
B.Dark room with flashlight on	How does light influence the room without making physical contact?	

Study the illustrations below and answer the questions that follow:

A. Driving with an ambulance encounter	How do you respond if you
	hear the sound of an
	ambulance? Why?

C. What Is It?

Magnetism is a fascinating example of a non-contact force, also known as an action-at-a-distance force. This type of force can act on an object without any physical contact. The non-contact force of magnetism enables magnets to attract or repel other magnets.

Light is an example of how objects can influence each other without direct contact. When light emanates from the sun or a lamp, it carries energy and information like electromagnetic waves that spread through space until they interact with objects for example your eyes. Once light waves enter your eye, they interact with internal structures, including the retina and optic nerve. This demonstrates how energy and information can be transmitted through space via electromagnetic waves, even from a distant light source. In addition, sunlight affects our skin without direct contact by containing ultraviolet (UV) radiation, which can penetrate the outer layers of the skin and lead to chemical reactions in skin cells, causing tanning and potential sunburn with excessive exposure.

Sound waves are mechanical vibrations generated through a medium, such as air, water, or solids. When sound waves encounter an object, they can exert forces on it. For example, loud sounds can cause objects to vibrate or even move if the sound pressure is strong enough. In ultrasound technology, high-frequency sound waves are used to create images of objects inside the body without touching them.

D. Let's try!

Activity D.1: Light and Shadows

Materials needed:

- Various objects (paper clips, coins, plastic toys, etc.)
- Flashlight
- White paper or wall

Procedures:

- 1. Use a flashlight and a white wall or paper.
- 2. Dim the lights in the room.
- 3. Shine the flashlight onto different objects (toys, hands) and observe the shadows cast on the wall.
- 4. Explain how light travels and affects objects by creating shadows.
- 5. Take turns shining the flashlight and observing the shadows.

Guide questions:

- 1. What did you observe when you shined the flashlight on different objects? Can you describe what you see?
- 2. How does the size of the object's shadow change when we move the flashlight closer or farther away?
- 3. How do objects interact without touching them?
- 4. Can you give an example of a scenario in everyday life where light from the sun affects objects without direct contact? How does this effect occur?

Activity D.2: Magnetism Demonstration

Materials:

- Magnet
- Various objects (paper clips, coins, etc)

Procedures:

- 1. Hold a magnet near each object and demonstrate how the magnet can attract certain objects without touching them.
- 2. Observe and describe what they see happening.

Guided questions:

- 1. What did you observe? Describe what you see.
- 2. Explain how the magnet can attract certain objects without touching them.

E. Let's Evaluate

Directions. Read and understand the following statements. Choose the letter of the best answer. Write you answers on a separate sheet of paper.

- 1. Which of the following is an example of objects affecting each other without direct contact?
 - A. leaves changing color
 - B. a rock falling from a cliff
 - C. magnets attracting each other
 - D. water evaporating from a pond
- 2. How does light from the sun affect our eyes and skin?
 - A. by creating rainbow
 - B. by providing warmth
 - C. by causing earthquakes
 - D. by stimulating retinas and causing tanning or sunburn
- 3. Which of the following describes how loud noises can affect our ears without direct contact?
 - A. by making us jump
 - B. by tickling our skin
 - C. by attracting animals
 - D. by causing pain or discomfort
- 4. Which of the following best exemplifies how objects can affect each other without direct contact?
 - A. rain falling from the clouds
 - B. a bird building a nest in the tree
 - C. a person catching a ball thrown to him
 - D. magnets attracting each other
- 5. How can objects affect each other without direct contact?
 - A. through physical collisions
 - B. by sharing energy through touch
 - C. only through verbal communication
 - D. via electromagnetic force, such as magnetism and light

- 6. What do you think will happen if you shine the flashlight on to an object?
 - A. the object casts shadows
 - B. the object changes color
 - C. the object becomes magnetic
 - D. the object emitted a humming sound
- 7. What phenomenon occurs when two magnets are brought near each other without direct contact?
 - A. electric repulsion
 - B. gravitational attraction
 - C. thermal conduction
 - D.magnetic attraction or repulsion
- 8. Which of the following best describes the nature of sound waves?
 - A. sound waves travel fastest through gases
 - B. sound waves cannot travel through solids
 - C. sound waves require a medium to propagate
 - D. sound waves are a form of electromagnetic radiation
- 9. In everyday life, which scenario best illustrates how light from the sun affects objects without direct contact?
 - A. a car driving down a street
 - B.a plant growing on a window
 - C. a person watering their garden
 - D.a person feeling warmth from sunlight through the window
- 10.Which of the following describes object can affect each other without direct contact using light?
 - A. by reflecting
 - B. by emitting odor
 - C. by transmitting heat
 - D.by causing physical vibrations

F. References

Abutay et al. 2015. Science Teacher's Guide. Pasig City: Lexicon Press, Inc.

Abutay et al. 2015. Science Learner's Guide. Pasig City:

Lexicon Press, Inc. Delos Reyes, Rolando Jr., Fides P. Balatbat, Kristoffer

Lloyd Quicho, Nenita A. Apolinario. Science Links. Rex Book Store, Inc., 2023

https://commons.wikimedia.org/wiki/File:Paperclip-01_%28xndr%29.jpg

https://pxhere.com/en/photo/1567819

https://spark.iop.org/collections/non-contact-forces-physics-narrative

https://vectorportal.com/vector/flip-flops-sandals.ai/16468

https://www.deviantart.com/earthymoon/art/Stock-PNG-Tree-Stump-264183823

https://www.exploratorium.edu/tinkering/projects/light-shadow-explorations

https://www.needpix.com/photo/1161421/nail-nails-wire-pins-carpentersnail-nail-head-pointed-great-nagal-connection

https://www.needpix.com/photo/download/1833607/paper-texturestructure-lined-paper-white-light-structured-underlay-line

https://www.rawpixel.com/image/6772755/png-sticker-vintage

https://www.rawpixel.com/search/needle%20sewing?page=1&path=_topics &sort=curated

https://www.salisburymanorprimary.org.uk/Portals/0/adam/Content/6_y VPIW2pkqziS8R_n8nmg/Files/Science%20-%200bjects%20at%20a%20distance.pd

Answer Key

Grade 4 SCIENCE

Quarter <u>**3**</u> LC No. <u>**9**</u>

A. Look Back!

Needle pin, paper clip, nails

- B. What's New? Answers may vary
- C. Let's try!

Answers may vary

- D. Evaluation
 - 1. A
 - 2. D
 - 3. C
 - 4. C
 - 5. D
 - 6. A
 - 7. C
 - 8. D
 - 9. D
 - 10.A

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