

Quarter: THIRD

Chapter1: Motion

Lesson 1: Describing the Motion of an Object by Tracing and Measuring its Change in Position (distance travelled) over a Period of Time.

Duration: 5 days

I. Objectives:

Describe the motion of an object by tracing and measuring its change in position (distance travelled) over a period of time.

II. A. Materials

(Day 1) empty glass bottle, cork, tissue, a half cup of vinegar, a half cup of baking soda, petroleum jelly or oil round pencils

(Day 2) a battery powered toy airplane or glider, thin wire or nylon cord

(Day 3) small plastic toy car, meter stick/tape measure/ruler

(Day 4) spring board, 3 identical padlocks

B. Reference/s:

Curriculum Guide **S5FE- IIIa-1**

Science TG 4, pp. 219-221, LM 4 pp. 175-177

Science and Health 6, pp. 259-263, 265-267,

C. Process Skills: inferring, contrasting, communicating, observing, describing, explaining

D. Values Integration: Consideration for others and love for animals.

III. Learning Tasks

A. Engagement:

1. Review the effects of force on the size of the person who push through game.

a. Call a small boy and a big boy in class.

b. Ask them to push the teacher's table one at a time in 10 seconds.

Who do you think was able to push the table farther?

Who exerted less effort/ force to push?

Does the size of the body affect the force to be exerted to push the table? Prove your answer.

B. Exploration:

1. Group the pupils into four small group.

2. Set norms in performing the activities.

3. Let the pupils perform the activity on LM,

(Day 1) Lesson 1: "Why do objects move?"

(Day 2) Lesson 2: "What forces move it in and out?"

(Day 3) Lesson 3: Push and Go

(Day 4) Lesson 4: Hang and Pull

4. Supervise the pupils while performing the activity and give assistance whenever needed.
5. Allot time for the pupils to wrap and finalize their output.

Note: (for Day 4 activity only)

- In case a spring balance is not available, improvise by using a garter and a clip.
- If you opt to use a garter, measure first its initial length.
- Trace the length of the garter.
- Measure the length of the garter every time a padlock is hanged to it.
- To measure the force exerted by the padlock on the garter, subtract the new length. Do this every time you add a padlock to the garter.
- Let the pupils be familiar with the formula for computing force.

C. Explanation:

(Day 1) Answers to “Why do objects move?” Guide Questions

1. Does the cork fly out? (Yes)
2. In which direction does it go?
(It moves toward the direction where the opening of the bottle is.)
3. Does the bottle move? (Yes)
4. In which direction does it move? (It moves away the direction where the opening of the bottle is/ it moves in opposite direction.)

(Day 2) Answers to “What forces move it in and out?”Guide Questions

1. Do you turn the airplane circled you? Why?
(Yes, because you exerted effort of force to let the airplane fly in circles around you.)
2. What force keeps the plane in a circular path? (As the plane circled you, you turn around also so that you will not be encircled by the wire. The **centrifugal force** pulls abject away from the circle.)
3. If you were to let go of the wire, what will happen? (The plane tend to follow a straight line or curvy path but not in circular anymore. The force is called **centripetal force**. Centripetal means “seeking the center”.

(Day 3) Answers to Push and Go Guide Questions

1. How do you compare the distance travelled by the toy car when you pushed it with varying strength of forces?(The stronger the force exerted, the farther the toy car travels.)
2. Which degree of force applied made the toy car travelled the fastest from the starting point?
(The toy car travelled farther when the force applied was stronger. It travelled nearer when a lesser force was applied to it.)
3. What factors do you think affected the movement of the car? (Shorter distance is travelled when the force is weak, while longer distance is travelled when the force is strong.)

(Day 4) Answers to Hang and Pull Guide Questions

1. What did you observe with the spring balance when you hanged a padlock to it?
(The spring was pulled down when a padlock was hanged to it.)
2. What was the effect on the spring balance he more padlocks?
(The spring is pulled lower as more padlocks were hanged to it.
3. Predict what will happen if you keep on adding more padlocks to the sprig balance.
(The more padlocks hanged, the lower the spring will be pulled down.)
4. Give additional explanation whenever necessary.The force applied on an objects’ movement.
Objects with lesser mass require lesser force for it to move it to some distance, while objects with objects with greater mass require greater or stronger force to make it move longer distance.

D. Elaboration/ Extension:

Try performing this activity to further understand the effect of force on an object. Have fun!

Activity Title: **Just For Fun!**

Materials: three identical small toy cars

1. Do this activity with three groups.
2. Look for a flat and smooth surface in your school grounds.
3. Mark a starting point and a finish line on the surface. Measured at least 2-meter distance.
4. Choose two members of each group to play first.
5. From the starting point, place the toy cars down.
6. The first player of each group will stay in the starting line and the second player will stay in the finish line.
7. When the teachers signals the start with a whistle, the players in the starting line will blow the toy cars up to the finish line. Do not hold the toy car. It will be considered a violation and have to start again from the starting line.
8. Once the toy car reaches the finish line, the second player is authorized to reverse it and position as the starting point. He immediately starts to blow the car back to the starting line. The first to reach the starting line declared the winner.
9. Play the game several times. Assign another set of players. The first group to make three points will be grand winner. Encourage maximum participation.
10. Play the game fairly and follow rules. Have fun!

Questions:

1. How did you find the activity?
2. Was it easy to blow the car up to the finish line?
3. What strategies did your group apply in order to win?
4. Did the body built of the group members help the group to win?

E. Evaluation:

Choose the letter of the correct answer.

1. What causes object to move?
A. weight B. gravity C. force D. magnets
2. When you step on a boat to ride, the boat makes a little backward motion. Which law of motion explains this?
A. Force is equal to the product of the mass and acceleration.
B. Force every action, there is an equal and opposite reaction.
C. an object at rest tends to stay at rest.
D. An object in motion tends to stay in motion.
3. The laws of motion explain why objects move. Who formulate these laws?
A. Galileo Galeli C. Benjamin Franklin
B. Thomas Edison D. Isaac Newton
4. The hula hoop moves around your body in a circular motion. What force pulls the object away from the circle??
A. gravity C. centrifugal force
B. acceleration D. centripetal force
5. If a boy will have to kick one object, which one from the list below will move the farthest upon kicking?
A. shut put ball C. golf ball
B. soft ball D. tennis ball

IV. Assignment:

A delivery truck stopped in front of your house. They will deliver a Balikbayan Box which your mother sent for you. The box is quite heavy for the delivery men to carry. What can you suggest so that they can carry the box easier? List down your suggestions.