

Force, Motion, & Sound Lesson Plans - 10 Day Unit

Objective /SOL: 1.2 TSW investigate and understand that moving objects exhibit different kinds of motion

- TSW describe and classify moving objects as straight, curved, circular, or back and forth
- TSW understand that vibration create sound (humming, strumming a guitar, & plucking a rubber band)
- TSW predict an objects movement based on its size, shape, and the force of push and pull
- TSW make and communicate observations about moving objects (wheels, tops, wind up toys, & playground equipment).
- SW record observation of movements and compare them using graphs, pictures, and or numbers.

Essential Knowledge: In order to meet this standard, students should be able to:

- make and communicate observations about moving objects. Examples should include balls, objects with wheels, windup toys, tops, rubber bands, and playground equipment.
- predict an object's movement, using its size, shape, and the force of the push or pull on it.
- conduct a simple experiment to determine an object's movement.
- describe and classify the motion of an object as straight, circular, curved, or back-and-forth.
- understand that vibrations may create sound, such as humming, strumming a guitar, or plucking a rubber band.
- record observations of movement (length/distance), using standard and nonstandard units.
- compare the movement of objects, using graphs, pictures, and/or numbers.

Vocabulary: push, pull, force, movement, back and forth, curved, straight, circular, & vibration

Day #1

Materials: T.E. Page _____ Text Page _____ Manipulatives Overhead Whiteboards

Other rubber bands, Push and Pull (Big Book), 'The Push and Pull Song'

Anticipatory Set: Story / Poem _____ Video _____

Other Questioning: Did you know that we have symbols all over the place? (Ex. stops signs, street lights, turtles, lips, and octopus on our behavior chart) Why do you think we have them? What are they for?

Procedure(Guided/Independent Practice): (1) TSW children push their hands together. (2)TSW link their fingers together and pull their hands apart. Feel the force. (3)TSW put a rubber band over their thumb and index finger. Stretch the rubber band by pushing their fingers apart. Feel the pull of the rubber band as more force is applied. (4) TTW define push, pull and force. TTW facilitate a discussion with the students about what they observed/learned from the push and pull experiment. (5) TTW read the Push & Pull (Newbridge Big book)

Closure: TTW sing 'The Push and Pull' song (sung to Row, Row, Row Your Boat) with the students.

Day #2

Materials: T.E. Page _____ Text Page _____ Manipulatives Overhead Whiteboards

Other text pages F4-F7, small blocks, sting, craft sticks (tongue depressor), rubber band ball, paper, pencil, & crayons

Anticipatory Set: Story / Poem _____ TSW sing 'The Push and Pull' song (sung to Row, Row, Row Your Boat)

Procedure(Guided/Independent Practice): TTW tell students that things can move in different ways. Then read about making things move in the text pages F5-F7. TTW give the students a purpose of identifying pushes and pulls while watching the *Magic School Bus: Plays Ball* Video. TTW tell students that things can move in different ways. Then read about making things move in the text pages F5-F7. TTW ask "What on your table could be used to push or pull the block?" Ask the students make a plan for moving the block and then carry out their plans. (see text page F4 for pictures) TSW investigate pushing an pulling. TSW fold a piece of paper in half and on one side draw a picture of how they pushed the block and on the other draw how they pulled the block.

Closure: TSW fold a piece of paper in half and on one side draw a picture of how they pushed the block and on the other draw how they pulled the block.

Writing Extension: Describe in writing how they pushed and pulled the block.

Day #3

Materials: T.E. Page _____ Text Page _____ Manipulatives Overhead Whiteboards

Other Magazines, glue, paper headed push and pull

Anticipatory Set: Story / Poem _____ Video _____

Other TTW review the difference between pushing and pulling.

Procedure(Guided/Independent Practice): TSW look in magazines for objects that move with a push or pull. Cut out the pictures and paste on paper, classified as push or pull. (whole group, small group or individual activity)

Closure: TSW can share their work if time permits.

Day #4

Materials: T.E. Page _____ Text Page _____ Manipulatives Overhead Whiteboards

Other Magnets, paper clips, copy paper

Anticipatory Set: Story / Poem _____ Video _____

Other TTW demonstrate to the students the "flying" paperclip (a paper clip attached to a string taped to the table is suspended in mid-air by a bar magnet). Ask questions like: (1)Why is the paper clip suspended in mid-air? (2)How many other things can you attach to a string and suspend with a magnet?

Procedure(Guided/Independent Practice): (1) TSW take turns repeating the experiment with the floating paperclip attached to the string. (2) TTW demonstrate to the students by placing a magnet beneath a sheet of paper and placing a paper clip on top, you can pull the paper clip with the magnet. (3)TSW take turns repeating the experiment with moving the paperclip with a magnet.

Closure: TTW facilitate a discussion about how the magnet pulls the objects.

Day #5

Materials: T.E. Page F8-F11 Text Page F8-F11 Manipulatives Overhead Whiteboards

Other Moving objects (slinky, toy car, top, ball, wheel, wind up toys & playground equipment).

Anticipatory Set: Story / Poem _____ Video _____

Other Moving objects (slinky, toy car, top, ball, wheel, wind up toys & playground equipment).

Procedure(Guided/Independent Practice): TTW explain that things move in many ways. TT &SW read in the text pgsF9-F11 about the methods of movement (straight, curved, circular, fast, slow, round & round, and back & forth). TSW investigate movement by manipulating a variety of objects.

Closure: TTW facilitate a discussion during which the class will make a chart of objects and how they move.

Math Extension: Use the information from the chart to graph different types of movement.

Day #6

Materials: T.E. Page E34-39 Text Page E34-39 Manipulatives Overhead Whiteboards

Other Toilet paper or Paper towel tube, aluminum foil, Textbook pgs E34-39 & Sound (Newbridge big book)

Anticipatory Set: Story / Poem _____ Video _____

Other Sound Investigation (text pE34) TSW investigate sound by humming into a toilet paper or paper towel tube(E34).TTW then punch holes in the tubes and 2 centimeters from the end of the tube and then cover the top with foil using the rubber band to hold it in place. (see pg E34).TSW will hum into the tube again. TTW facilitate a discussion about how adding the foil and hole change the sound.

Procedure(Guided/Independent Practice): TTW guide students as they read about sound in the text pgs E35-E39.) Close out lesson by reading and discussing the 'Sound' big book (if time permits).

Closure: TTW facilitate a discussion about what the students learned about sound from the text & Big book

Day #7

Materials: T.E. Page _____ Text Page _____ Manipulatives Overhead Whiteboards

Other Geoboards, rubber bands, geoboard recording page

Anticipatory Set: Story / Poem _____ Video _____

Other Questioning: "How do we make sounds?" [Vibrations, moving back and forth.]

Procedure(Guided/Independent Practice): (1) Put a rubber band on a geoboard and pluck it. Ask: "Could I change the sound?" Try out one or two of their ideas. Explain to children that you would like them to investigate how to change sound by rearranging the rubber bands on the geoboard. TSW draw pictures of arrangements they made. (2) TSW try and recorded various arrangements. TTW facilitate a discussion about their findings. "Is there a rule which tells how sound will change?" [Yes. The tighter the band is stretched, the higher the pitch.]

Closure: TSW write a sentence or two explaining what they did with the rubber bands.

Day #8

Materials: T.E. Page _____ Text Page _____ Manipulatives Overhead Whiteboards

Other string, paper cups(plastic, paper, or foam), tooth picks

Anticipatory Set: Story / Poem _____ Video _____

Other TTW review what was learned in the rubber band activity from the previous day.

Procedure(Guided/Independent Practice): TSW make and explore string telephones. In groups they explain how sounds are made and how they travel. TTW explain that some sounds are too quiet to hear over long distances. Show the children one example of the string telephone. Ask one child to listen into one cup while you whisper into the other cup. TTW explain to the children that they will work in pairs of children using string telephones to investigate what the best conditions are for hearing. TTW report on their findings after five or six minutes of investigation per partner. TTW ask: "What conditions worked best to hear the whispers? [String taut, touching nothing, partner's mouth directed into cup, quiet background, etc.]

Closure: TSW write or draw the path of vibrations from mouth to ear.

Advanced Preparation: *Make string telephones, either one per pair of children, or enough sets for children to use as part of a center. Cut string three meters long. Use a pencil to poke holes in the bottom of the cups. Break the toothpicks in half. Tie a toothpick half to each end of the string. Put one toothpick through the holes of each cup, so that the toothpick is on the inside of the cup. Let each toothpick lie flat against the bottom of the cup.*

Day #9

Materials: T.E. Page _____ Text Page _____ Manipulatives Overhead Whiteboards

Other Cups (paper or plastic, one per group), Rubber bands (large, one per group), Toys / Noise Makers (bells, baby rattles, blocks, kazoos, flutes, recorders, real or toy guitar)

Anticipatory Set: Story / Poem _____ Video _____

Other TTW explain that you are beginning a study of sound and that you have some toys that you would like to investigate.

Procedure(Guided/Independent Practice): (1) TSW observe sounds that are made by toys and experiment to make their own sounds with familiar equipment. (2) TTW make a class chart labeled 1-item that made the sound, 2-Description of sound, 3-which part was moving. (3) TTW choose a toy to make a sound and then talk about the sound "How do you describe the sound the object makes?" TTW fill in the chart.--SOUND WORDS - honk, squeak, snap, clap, beep, click, clack, cluck, ring, clang, cling, ding, bing, bong, bang, ting, hoot. (4) TTW ask children to tell you how the toy made the sound [moves, wiggles, vibrates.] Ask: "What was moving to make the sound?" TTW fill in the chart.

Closure: TSW work in pairs to make sound from the cup, rubber band, and text book.

Day #10 - TSW take a unit test over the Force, Motion, & Sound content.