

Push, Pull, and Watch

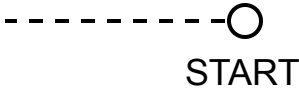
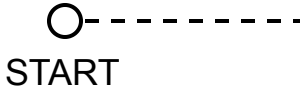
See how direction and strength change motion

Name: _____ Date: _____

Part 1: Push and Pull

Listen while your teacher reads the directions. Work with a partner. Use the classroom tub and yarn.

1. Put the tub at START. Give it a gentle push toward the left path. Watch. Draw the tub where it stops. Draw an arrow to show its path.
2. Put it back at START. Gently pull the yarn toward the right path. Watch. Draw the tub where it stops. Draw an arrow to show its path.

Push trial	Pull trial
	
Draw the tub and its path.	Draw the tub and its path.

I saw the push and pull go in: _____

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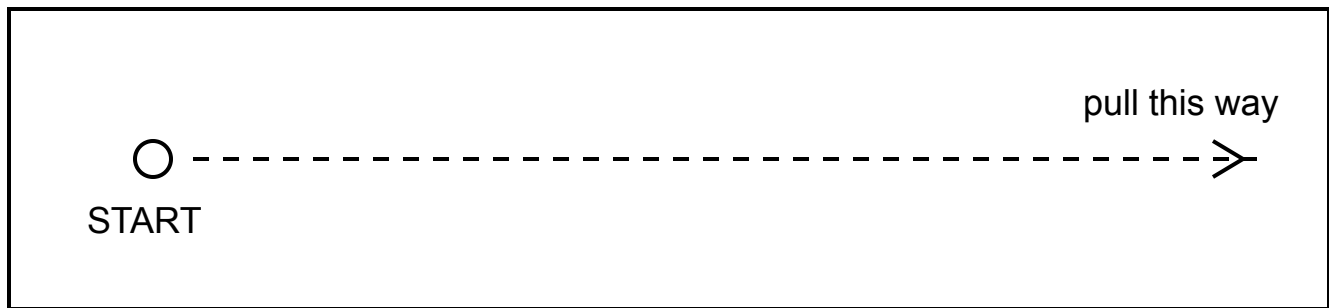
Part 2: Compare Strength

Keep the **same tub, table, START, and direction**. Pull the yarn gently two times. Reset to START each time. Mark each stopping place with a G.

Next, pull the same way with a stronger pull two times. Reset each time. Mark each stopping place with an S.

Which set usually stopped farther from START? Circle one: **G** **S** **about the same**

Mark G and S stopping places on this path.



My marks show: _____

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Answer key and teaching notes

Materials

Supplied: student recording pages.

Additionally needed: one small empty plastic tub or sturdy pencil box per pair, a 45-60 cm piece of yarn tied or taped securely to the tub for pulling, masking tape, pencils, and a smooth clear tabletop. Use a low table or floor path only if it is fully clear. Do not use rolling objects; the tub should slide.

Exact setup

Before students arrive, test the tub on the chosen surface. Place a tape dot labeled START in front of each pair. Make clear left and right paths for Part 1. For Part 2, make one straight tape path extending away from START. The same tub and surface must be used for all four strength trials. Confirm that a gentle pull and a stronger pull can be made safely without the tub leaving the work area.

Teacher-read script

“Scientists watch closely and record what they see. Do not guess what your partner saw. In Part 1, reset the tub at START before each trial. First, one partner gently pushes it toward the left path. Then reset it. Pull the yarn toward the right path. Draw where the tub stopped and draw its path. In Part 2, keep the tub, table, START, and direction the same. Make two gentle pulls and two stronger pulls. Mark every stopping place. Your marks are your evidence. Different pairs may have different results.”

Observation method

Circulate with a checklist: (a) student watches each real trial, (b) tub is reset to START, (c) Part 1 includes one push and one pull, (d) Part 2 has two G and two S marks, (e) comparison conditions stay the same except pull strength, and (f) student states a conclusion from marks rather than from adult prompting. Ask, “Show me the marks that helped you decide.” Do not name the result before the student observes it.

Answers and rubric

1. Part 1: Accept any accurate drawing showing the actual final position and a path arrow for both trials. The push and pull should be recorded as moving in the observed directions. If a trial does not move, accept a drawing at START when it matches observation; invite a safe repeat with a usable force.
2. Part 2: Student marks four observed endpoints: two G and two S. The circled choice must match the student's own marks. No fixed choice is correct for every pair. If evidence is mixed, “about the same” or a repeat trial is acceptable.
3. Oral/written statement: Accept evidence-based language such as “The S marks were farther from START,” “The G marks were farther today,” or “Our marks were about the same.”

Source credit

Virginia Science Standard K.2, task source: <https://lessonmakerpro.com/standards/va-sol-science/k-2>