

THE STANDARD

Gravitational Force

Support an argument that the gravitational force exerted by Earth on objects is directed down.

 ANCHORING PHENOMENON

Australia Is Upside Down, So Why Don't They Fall Off?

Show a globe and point to your town, then spin it to Australia on the bottom. To us, those people look upside down. Yet they walk and drop their pencils just like we do, and nothing floats off into space. Same planet, opposite side, and somehow "down" works for everyone. 5th graders will want to know how that's possible.

DRIVING QUESTION

"If people on the bottom of the globe are upside down to us, why doesn't gravity make them fall off into space?"

 INVESTIGATIVE 1

The Drop Test That Always Goes One Way

Hand groups a tray of safe objects: a cotton ball, an eraser, a crumpled paper, a marble, a feather. Drop each one, again and again, from different spots in the room. Every single object falls straight down toward the floor, never up, never sideways. Use this to sharpen the anchor: "down" is one steady direction, and Earth is doing the pulling.

DRIVING QUESTION

"No matter what object we drop or where we stand, which direction does it always go?"

 INVESTIGATIVE 2

Gravity Arrows Around the Globe

Give each group a printed picture of the globe. At the top, the bottom, and both sides, 5th graders draw an arrow showing which way gravity pulls a person standing there. Every arrow points inward, toward the center of the globe, even the one on the bottom that points "up" relative to your room. These are drawn arrows, a model of how real Earth pulls everything toward its center.

DRIVING QUESTION

"When we draw a gravity arrow at different spots on the globe, where does every arrow point?"