



Forces in action

BOX NOTICE

Name of the activity	Forces in Action
Activity duration	1h
Material needed	<p>Forces in Action box:</p> <p>- Sequence 1:</p> <p>1 heavy ball (tennis ball, or billiard ball, or squash ball, or golf ball), 4 balls of the same size (diameter) as the heavy ball made of different materials: plastic, polystyrene, paper, aluminium, sponge, rubber, plaster, glass, stone, meter stick, balance or electronic scale, sand, box, black marker, paper, pencils.</p> <p>– Sequence 2:</p> <p>calibrating weights, clear tape, scissors, 1 piece of thick card, paper fastener, graph sheet, elastic (rubber) band, card pointer, paper clips, string or cotton thread (or spring, syringe).</p>
Number of pupils involved (per box)	1-2

Step 1: Preparation

You may start the sequence by showing your pupils pictures with astronauts on Earth, on the Moon or in outer space. Ask students what is different in these situations.



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Step 2: Storytelling resources

Begin discovering the box by reading the story and end the reading by asking the pupils to speak about our dreams of flying and even reaching other planets.

Step 3. Manipulation (for Sequence 1)

Following the instructions in *How to create your elements* students will determine the relationship between the mass of the ball and the size of the impact it made on the sand:

- the size of the impact is different when the mass of the ball is different, but the height at which the ball is dropped is the same.

Step 4. Extension (for Sequence 2)

Following the instructions in “How to create your elements” students will build a measuring instrument and will suspend the balls from Sequence 1 to the measuring instrument.

Pupils will observe the reading on the measuring instrument, which is equal to the weight of each ball.

We can replace the elements with some very cheap ones:

- replace the elastic (Rubber) band with a spring;
- replace the piece of thick card with a syringe.