

Earth and the planets

Order. Orbit. Explain.

Describe how Earth and the other planets move around the Sun.



Start with the planets you know

01

Supported: order Mercury, Venus, Earth and Mars.

02

Standard: write the first four planets from the Sun.

03

Stretch: try all eight planets in order.

Three things to work out

1 Get the order right.

2 Model an orbit.

3 Explain what keeps the path curving.

Eight planets, one order

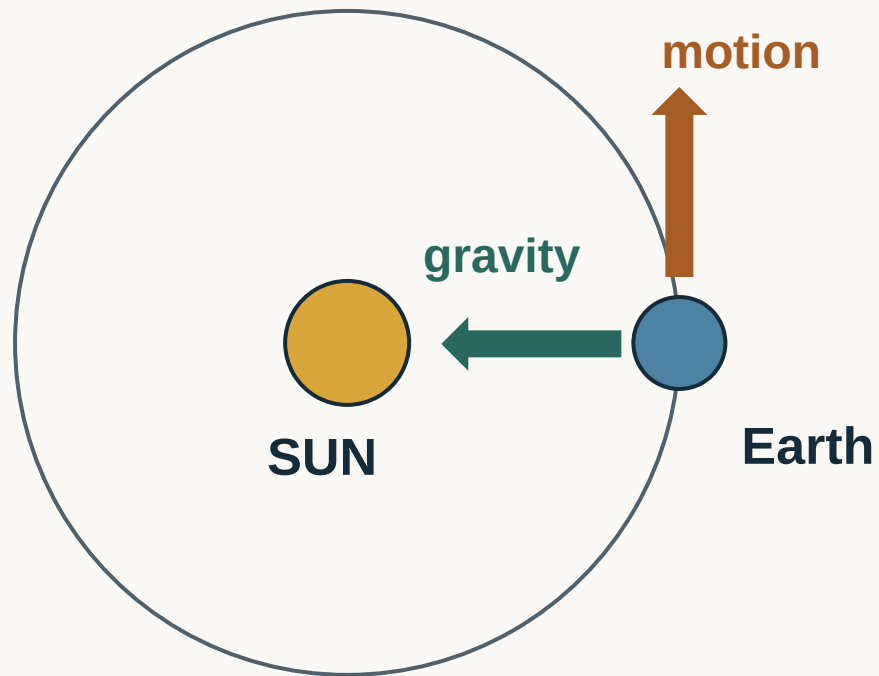
ROCKY INNER PLANETS

Mercury
Venus
Earth
Mars

OUTER GIANTS

Jupiter — gas giant
Saturn — gas giant
Uranus — ice giant
Neptune — ice giant

Gravity changes the direction



Motion is along the path. Gravity pulls towards the Sun.

Motion direction is not another force.

Move the model, then challenge it

01

Put a Sun label on the desk and an Earth counter beside it.

02

Move Earth around the Sun. At two places, reset both arrows.

03

If gravity vanished, trace the straight-on direction.

Rocky or giant?

Mercury

Mars

Jupiter

Neptune

Which has the longer year: Earth or Mars?

Check a reason, not just a label

CLASSIFICATION CHECK

Mercury and Mars: rocky
Jupiter: gas giant
Neptune: ice giant

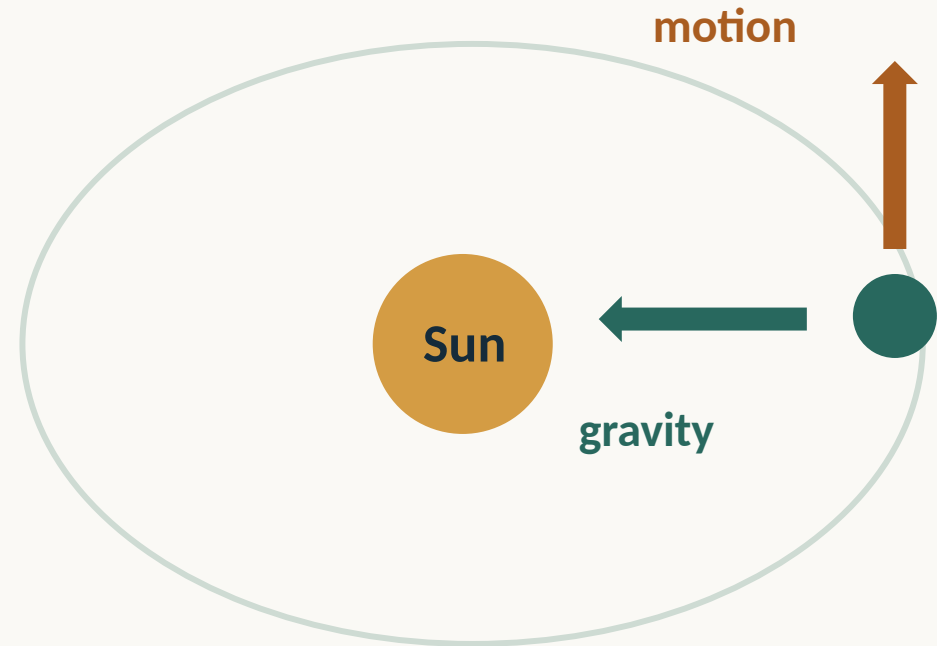
YEAR CHECK

Earth: 365 Earth days
Mars: 687 Earth days
Mars takes 322 more days.

Build the explanation

The Sun's gravity pulls Earth inward, continually bending its moving path into an orbit.

Name the force, then explain its effect.



Schematic: sizes and distances not to scale

Sort five statements

- 01 Planets orbit the Sun.

- 02 The Sun orbits Earth.

- 03 Gravity keeps the planets in orbit.

- 04 There is no gravity in space.

- 05 Further-out planets have longer years.

Answers to the five claims

TRUE CLAIMS

Planets orbit the Sun.
Gravity keeps them in orbit.
Outer planets have longer years.

FALSE CLAIMS

The Sun orbits Earth.
There is no gravity in space.

Use time as evidence

Neptune's year is much longer than Earth's: about 165 Earth years for one orbit.

A year means one orbit, not always 365 days.

Keep your orbit explanation

01

Label and keep today's order strip and explanation.

02

Next lesson: build the model and test year comparisons.

03

Choose one arrow or idea to check again.
