2000470

Gymnast Replay

Lesson Plan

Explore the motion of a 'gymnast' (i.e. pendulum) on wheels and predict how the forces acting on it can change its motion.
In this lesson, your pupils will predict how the forces acting on an object can change its motion.

30–45 Minutes | Beginner | Key Stage 1

Engage (Whole Class, 5 Minutes)
- Facilitate a quick discussion about the force that helps a gymnast swing on a horizontal bar.
- Ask questions to start your pupils thinking. Here are some suggestions:
  - Which type of force is required to make a gymnast move? *(Gymnasts create push and pull forces with their muscles to generate forward momentum to overcome the force of gravity that is pulling them down.)*
  - Why is it important for gymnasts to watch replays of their performance? *(It helps them to improve their technique.)*
- Transition your pupils to the building challenge.

Explore (Individual Work, 20 Minutes)
- Have your pupils work independently to build the Gymnast model by following the building instructions (found in the box).
- The Student Worksheet will guide them as they experiment and predict how the forces acting on the gymnast can change its movement.

Explain (Whole Class, 10 Minutes)
- Prompt your pupils to explain how the different swing angles of the gymnast changed its motion.
- Ask questions like these:
  - How did a bigger swing affect the distance the gymnast travelled? *(The 160-degree swing generated more momentum, which made it go farther.)*

Elaborate (Individual Work, 10 Minutes)
- Have your pupils create drawings, short action replay videos or audio recordings explaining how the gymnast moved.

Evaluate (Individual Work)
- Ask each pupil to give an example of how the forces acting on the gymnast changed its motion.

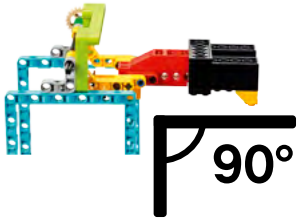
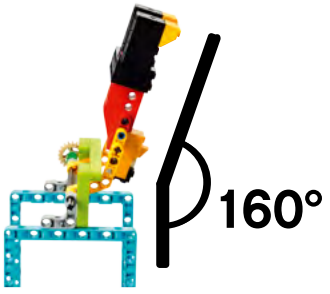
2000470

Gymnast Replay

Student Worksheet

Let's make a gymnast-powered car!

- [ ] Build your gymnast.
- [ ] Try these experiments to practise your prediction skills.

- [ ] How were you able to predict how far the gymnast would go at 160 degrees in both directions?
- [ ] Make a drawing, action replay video or audio recording to help you explain the gymnast's motion.