# → EXOPLANETS IN A BOX

## Modelling exoplanet transits

## FAST FACTS

**Subject:** Physics, Mathematics
**Age range:** 14-19 years old
**Type:** Teacher's guide and student worksheets
**Complexity:** Medium
**Lesson time:** 90 minutes
**Cost:** High (> 30 euro per 'exoplanet in a box' set-up)
**Location:** Classroom
**Includes use of:** Data logger or smartphone with luminosity app
**Keywords:** Physics, Mathematics, Exoplanets, Light curves, Transits

## Brief description

During these activities, students will work in small groups to model the transit of an exoplanet in front of its host star using an 'exoplanet in a box', and plot a light curve for this transit. Students will develop their own experiment: they will decide which variables to measure, what parameters to keep constant, and what equipment they need to take measurements. In addition, students will decide how to present their data and will develop their skills in data-logging and interpretation of graphs.

This activity is part of a series that includes "**Exoplanets in Transit**" where students analyse real data from ESA's Cheops satellite and "**Exoplanets in Motion**" where students build different transit models.

## Learning objectives

- Understand the difference between a star and a planet.
- Learn about the properties of exoplanets.
- Understand how to model the detection of an exoplanet using the transit method.
- Understand how to work scientifically.
- Learn how to design an experiment.
- Learn how to use data-logging equipment.
- Develop skills for interpreting graphs.