

## ACTIVITY 0.1 ASTRONAUT WORKOUT

From the Pre-launch Chapter of the  
Principia Space Diary  
[http://principiaspacediary.org/  
activities/astronaut-workout](http://principiaspacediary.org/activities/astronaut-workout)

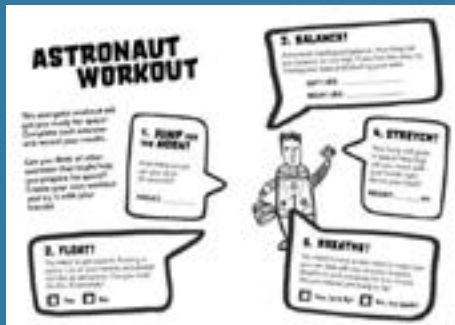
### LEARNING LEVEL

KS1, KS2, P1-5

### CURRICULUM LINKS & DIFFERENTIATION IDEAS

View detailed curriculum links for England, Scotland, Northern Ireland and Wales, plus differentiation ideas for your region and year level.

[principiaspacediary.org/  
curriculum-planner/](http://principiaspacediary.org/curriculum-planner/)



### Resources Required

- Classroom with clear floor space or outdoor space. You will need an area large enough for all students to lie down with their arms outstretched.
- Stopwatches or class timer (available online)
- Metre sticks or rulers

### Background to this Activity

ESA Astronaut Tim Peake trained for four years before flying into space. He needed to be fit and healthy and he also needed to understand what might happen to his body in space.

### Running the Activity

During this activity students will do a range of exercises: aerobic, anaerobic, co-ordination, weight bearing, balance, core strength and mindfulness. This is designed to be physically energetic and students will also need to work together to count, measure and document their results in their Space Diary.

**1. Jump:** On Earth, humans experience the effects of gravity as a constant force pulling on the human body. By jumping you are trying to defy gravity. Jumping activities are weight bearing activities that help build strong bones. They also get the heart rate up to improve cardiovascular fitness.

**2. Float:** Students can imagine they are floating around inside the ISS while stretching their arms out wide and strengthening their core.

**3. Balance:** Develop core muscles and posture. This is important for astronauts like Tim because the Soyuz capsule that will take Tim from Earth to the ISS is very small and the journey is gruelling. Tim needs strong core muscles.

**4. Stretch:** Astronauts can grow up to two inches taller in space as there is no gravity to keep the bones compressed. After returning to earth, they will return to their normal height. Students can work in pairs or teams to measure each other.

**5. Breathe:** Lots of things can go wrong in space, so it is critical that astronauts have strong, healthy minds. They need to be able to deal with problems in a calm and efficient way. This mindfulness exercise gets the kids to focus their minds so they, too, can tackle any problem. Ask students to sit in a comfortable position, eyes closed. As they breathe in and out have them visualise that their breath is a ball of heat moving through their body, all the way down and out their legs.

### Questions for the Class

- Why do astronauts need to be healthy?
- Why do astronauts need to have a healthy mind?
- What parts of the body are you using as you exercise?
- Can you research the exercises Tim did during training?