

# **ACTIVITY 2.3 EARTH TO PRINCIPIA**

From Chapter 2 of the Principia Space Diary http://principiaspacediary.org/ activities/earth-to-principia

#### **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/





### **Resources Required**

• Whiteboard/Blackboard to help students crack code

## **Background to this Activity**

Astronauts communicate with Mission Control and their families using a network of satellites called the Tracking and Data Relay Satellite system. The first of these satellites was launched in 1983. Video links aboard the ISS show Mission Control what is happening in space, and can be used to help guide astronauts through activities, if they need assistance.

There is even internet in space, which helps astronauts stay in touch with their families and friends. Unfortunately the internet is very slow, but it is still an important link to Earth. Sometimes codes are used in space, so that the right message gets to the right person or organisation.

## **Running the Activity**

In this activity we ask students to decode a message and to do this they will need lots of patience - just like the best astronauts! Some students will "crack" the code while others may work methodically through until they have filled in all the blanks. Either way this is a great primer for coding, problem solving and mathematical thinking.

To help students break the code, start by identifying the letters you already have (e.g. B = E, E = H, F = I etc). Write the alphabet up on the board and write the corresponding letters underneath as you decode them. Can you see a pattern forming? A visual intervention may help some pupils grasp this more easily, so ask one of the students to draw a line from the letter on the top to the same letter in the line below and see if they can see a visual pattern forming. Here's an example:



Aha, it looks like each line is going in the same direction! Each letter of the alphabet has moved three spaces along. Now, can your students fill in the rest of the blanks and decode this mysterious message?

#### **Answer:**

Hello!

Is this Planet Earth? It's a beautiful view from up here.

Tim Peake,

Signing off!

**ZAP!** Student can access the decoded answer using the Zappar app for mobile or tablet devices. See Zappar instructions at the link below and note that the mobile/tablet will need to be connected to the internet: <a href="http://principiaspacediary.org/using-zap-codes-to-strength-en-digital-literacy/">http://principiaspacediary.org/using-zap-codes-to-strength-en-digital-literacy/</a>

### **Questions for the Class**

- How do astronauts stay in contact with Mission Control?
- Why do you think communication with Earth is so important for astronauts?
- Why would writing in code be useful?
- Is there internet in space? What would you use the internet for if you were an astronaut on the ISS?
- Using the code in the activity, can you write a space message?