

Play-Doh Planets

Activity

In this activity you will make scale models of the planets of our Solar System from Play-Doh. You will need to start with a large chunk of Play-Doh or the last few steps will become tricky! If you can print off these instructions, it would be a good idea to tick off each one as you have completed it. See the accompanying video for more information.

You will need

- Play Doh – at least three small, or two large tubs
- A ruler
- A piece of A4 paper

Activity instructions

1. Mix together all of your tubs of Play-Doh.
2. Roll the Play-Doh into a sausage shape and use the ruler to cut into **8** equal pieces.
Roll **5** parts together to create **Jupiter**
Roll **1** part to create **Saturn**
3. Combine the **2** remaining parts, and cut into **8** equal pieces
Take **2** parts and add to **Jupiter**, take **2** parts and add to **Saturn**
Take **1** part to create **Neptune**, take **1** part to create **Uranus**
4. Combine the **2** remaining parts and cut into **8** equal pieces
Take **3** parts and add to **Jupiter**, take **3** parts and add to **Saturn**
5. Combine the **2** remaining parts and cut into **8** equal pieces
Take **1** part to create **Earth**
Take **1** part and add to **Saturn**, take **3** parts and add to **Neptune**
6. Combine the **3** remaining parts and cut into **8** equal pieces
Take **2** parts to create **Venus**
Take **1** part and add to **Neptune**, take **1** part and add to **Uranus**
7. Combine the **4** remaining parts and cut into **8** equal pieces
Take **1** part and add to **Jupiter**, take **1** part and add to **Uranus**
Take **1** part and add to **Neptune**
8. Combine the **5** remaining parts and cut into **8** equal pieces
Take **1** part to create **Mars**
Take **1** part and add to **Venus**, take **1** part and add to **Earth**
Take **1** part and add to **Jupiter**
9. Combine the **4** remaining parts and cut into **8** equal pieces
Take **1** part to create **Mercury**
Take **1** part and add to **Venus**, take **1** part and add to **Saturn**
Take **1** part and add to **Uranus**, take **1** part and add to **Neptune**
10. Combine the **3** remaining parts and cut into **4** equal pieces
Take **1** part and add to **Earth**, take **1** part and add to **Uranus**
Take **2** parts and add to **Jupiter**

The Science

The inner planets are small and dense, whereas the outer planets are large and relatively light. In fact, Saturn is so light that it would float in water – if we could find an ocean big enough to put it in! This is due to materials from which the planets are made.

The inner planets have rocky outer layers with a core made of metal. The Earth's core, for example, is a mixture of Iron and Nickel. The outer core of the Earth is liquid metal, and it is this that gives the Earth its magnetic field. This magnetic field protects us from radiation from the Sun. The core of Mars is solid, and so its magnetic field is very weak. This weak magnetic field has allowed the solar radiation to blast away Mars' atmosphere, leaving only small amounts of Carbon Dioxide and water behind.

The outer planets are made of gas, mainly Hydrogen and Helium. You might think, then, that if you fell into Jupiter, you would simply fall out of the other side, like passing through a cloud. This is not the case, as the pressures inside the gas giants are so great that inside the planet the gas is squashed down to a liquid. This is similar to feeling a liquid sloshing about in a gas canister (when it is under pressure) but gas coming out when the valve is opened. Scientists think Jupiter's interior might contain a weird substance called metallic hydrogen and at certain depths it might even rain diamonds!