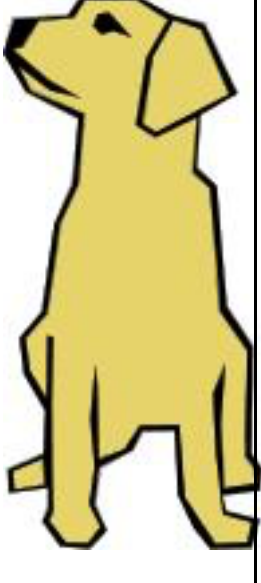
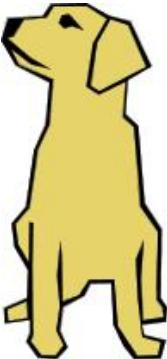
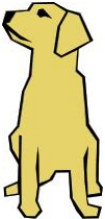





Modelling to Scale - Teacher's Notes

Modelling to Scale

A scale model is a copy that keeps the proportions but not the size of the original. The scale is the number of times the copy has to be magnified or reduced to be equal to the original.

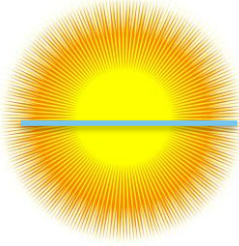

			
Original	Scale 1:2	Scale 1:3	Scale 1:4

What is the scale of the drawing on the right? $1/4$

It is difficult to make an accurately scaled model of Earth, Sun and moon because the sun is very, very large in comparison to the Earth and moon. The diameter of the sun is almost 109 times bigger than the diameter of the Earth. Draw the Earth on the same (1:1) scale as the sun. The blue line is the diameter of the sun. Students could make a very, very tiny dot with a very sharp pencil on the right side of the table on the next page.



Modelling to Scale - Teacher's Notes

	
Sun	Earth

If you drew the Earth as a circle with a diameter of 1cm, what size would the diameter of the sun be? **109cm.**

Guess how many sheets of A4 paper you would need to stick together to draw the Sun at this scale? **20. You would need to stick together a block of 4 sheets by 5 sheets.**

There is an excellent Prezi presentation, which will convince your students of the scaling problems at:

Prezi.com/hmx8hma62m2z/scale-model-of-earthsunmoon/

Some data

Diameter of Sun	1.392 million km (You could fit almost 109 Earths inside it)
Distance of Sun to Earth	150 million km (107 Earth diameters)
Diameter of Earth	12,742 km
Diameter of Moon	3,476 km
Distance of Earth to Moon	384,400 km (30 Earth diameters)
Space shuttle orbit	350km (it can't fly to the moon but is already in space)

