

# Competition score sheet

Educators' notes at [www.sciencemuseum.org.uk/scienceboxes](http://www.sciencemuseum.org.uk/scienceboxes)

Test	Scoring (points)	Reason	Additional materials required
<b>Volume test</b>	Any structure that covers a shoebox completely earns <b>+10</b>	The astronauts will need to have enough room to live and work in.	Shoebox
<b>UV test</b>	If the colour of the UV-detecting material lying inside the habitat doesn't change at all students get <b>+10</b>	UV radiation on Mars is much higher than on Earth. Without a suitable habitat, astronauts will not be able to take off their protective spacesuits.	Materials indicating UV light such as UV beads
<b>Temperature test</b>	What structure keeps hot water the warmest after five minutes? Best: <b>+20</b> 2nd best: <b>+10</b> 3rd best: <b>+5</b>	The temperature on Mars can reach an extreme cold of $-123\text{ }^{\circ}\text{C}$ , so any habitat will have to be well insulated. The teacher places a beaker of hot water inside the structure, with a thermometer in the water.	Beaker of hot water and thermometer
<b>Weight test</b>	What structure is the lightest? Lightest: <b>+15</b> 2nd lightest: <b>+10</b> 3rd lightest: <b>+5</b>	Any materials used in the habitat will have to be carried in the spacecraft. A lighter spacecraft will be easier to launch and require less fuel.	Weighing scales
<b>Strength test</b>	Every structure that supports a 500 g weight anywhere on its roof for ten seconds gets <b>+10</b> points and <b>+20</b> points if the structure can support 1 kg.	Any structure that will house astronauts on Mars will have to be tough and sturdy.	500 g and 1 kg weights, or other items such as bags of sugar
<b>Aesthetics test</b>	Students can vote for the best-looking structure (apart from their own). Winner: <b>+10</b> Runner-up: <b>+5</b>	Aesthetics might not be the most important criteria, but they will have an effect on the morale of the astronauts who will have to live there.	Voting cards
<b>Total</b>			

