Back to Earth with a Bump Reasoning

Challenge Cards



1. The buttons on Hal's bedhead are in this pattern:



What shapes would the 8th and 15th buttons be?

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2. Hal is measuring things to take with him on his next journey. Each item needs to have a length that is an even number.

thermometer = 10cm
first aid kit = 15cm
toothbrush = 8cm

Can all the equipment go on board?

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3. As Hal is getting ready to launch, Mission Control are counting down from 20 in 2s. Will they say number 7?



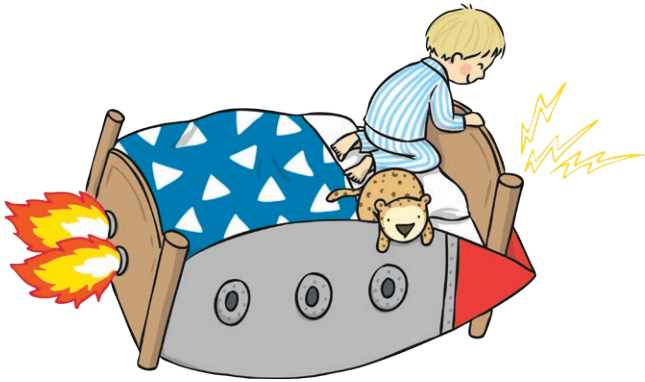
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4. The mission to find the Sun should have taken 20 hours. Hal took 12 hours to find it and 9 hours to get back home. Was Hal's mission finished in time? Explain your answer.



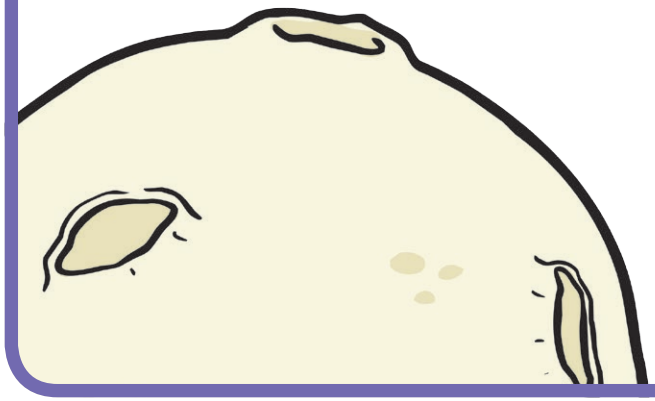
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5. Hal is almost home after finding the Sun. He says he will be back in half an hour. Mission Control say it will take 30 mins. Who is right?



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6. One member of Mission Control says that the Moon must be a cone because it has one curved surface. Are they correct?



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7. Hal's duvet has different coloured squares on it. They are in this pattern.



What colour would the 13th square be?

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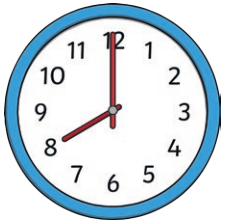
8. The number of planets Hal sees doubles every hour. In the first hour, he sees 2 planets.

   a) How many planets will see in the second hour?

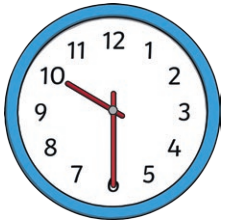
   b) Hal thinks he will see 7 planets in the third hour? Is he right? Explain your answer.

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9. The clocks show when Hal started and finished his journey. Mission Control say Hal's journey took 2 hours. Are they right?
   Explain your answer.



Start



Finish

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10. Hal takes the temperature over four hours.

7 o'clock	5 degrees
8 o'clock	12 degrees

9 o'clock	10 degrees
10 o'clock	20 degrees

Are the statements below true or false? Explain your answers.

a) The temperature at 10 o'clock is 3 degrees more than the temperature at 8 o'clock.

b) The temperature at 7 o'clock is lower than at 8 o'clock.

c) The temperature is highest at 9 o'clock.

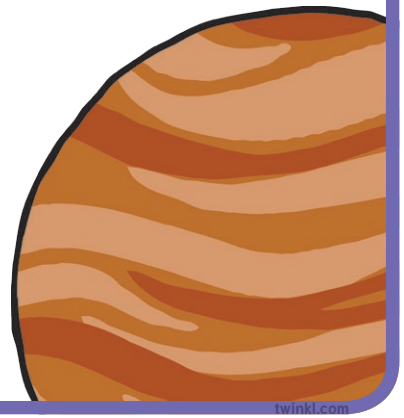
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11. Put the planets below in order from biggest to smallest, using the clues.

Jupiter is bigger than Earth.

Mars is bigger than Mercury.

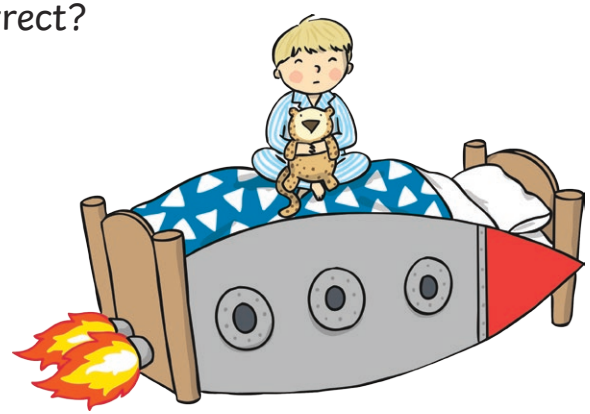
Mars is smaller than Earth.



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12. Hal needs to take 46 litres of water for a long trip. He only has bottles that hold 10 litres. He thinks that if he takes four bottles, he will have enough water. Is he correct?



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1. 8th = circle, 15th = triangle
2. No. 15cm is odd so he cannot take the first aid kit.
3. No. They will count down in even numbers so wouldn't say an odd number like 7.
4. No. 12 + 9 = 21 hours. It takes 1 hour longer than planned.
5. They are both right. 30 minutes and half an hour are the same length of time.
6. They are not right. The Moon is a sphere so has one curved surface. It doesn't have a flat face or point like a cone.

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7. The 13th square would be blue.
8. a) 4
   b) No. He will see 4 x 2 = 8.
9. No. His journey took 2 and a half hours because he started at 8 o'clock and finished at half past 10.
10. a) False – It is 8 degrees higher
    b) True
    c) False – The temperature is highest at 10 o'clock.

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11. Jupiter, Earth, Mars, Mercury
12. No. 4 bottles is 40 litres. He needs 5 bottles, even though one will not be full.

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