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extracts from
You Do the Maths: Launch a Rocket into Space

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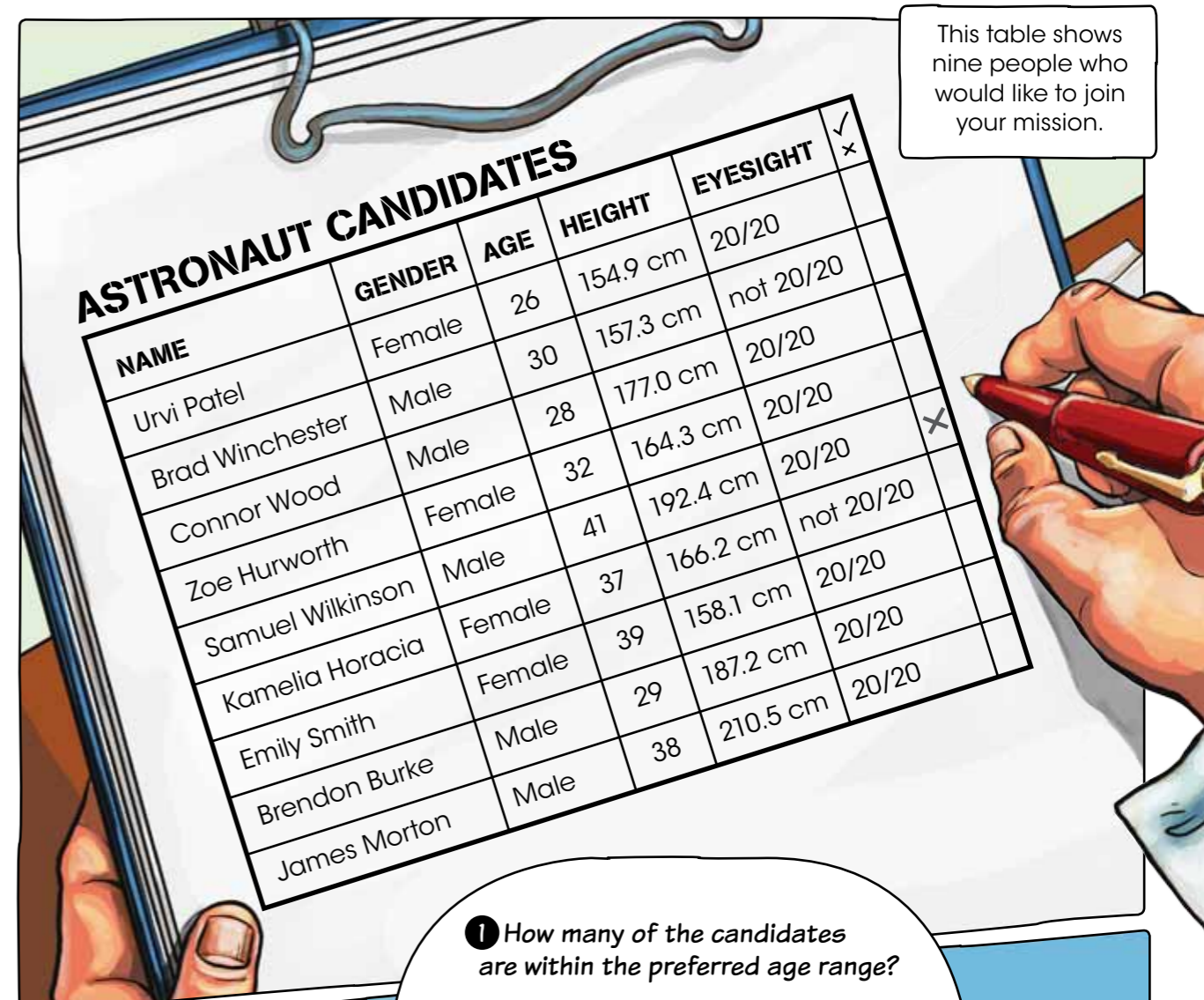
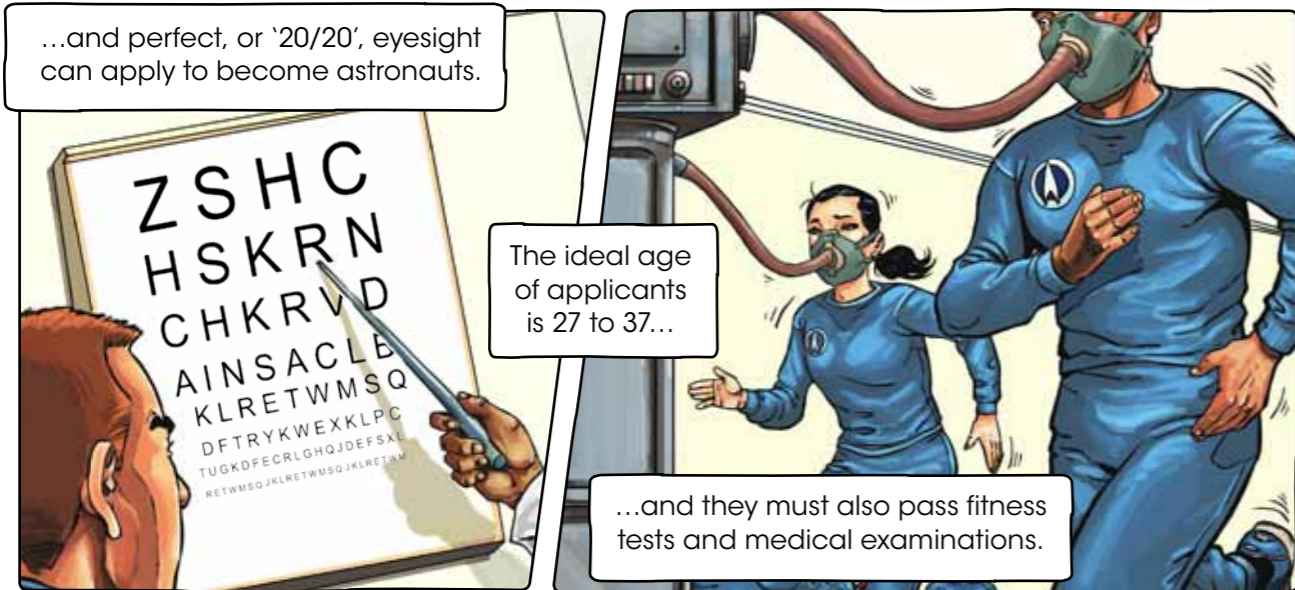
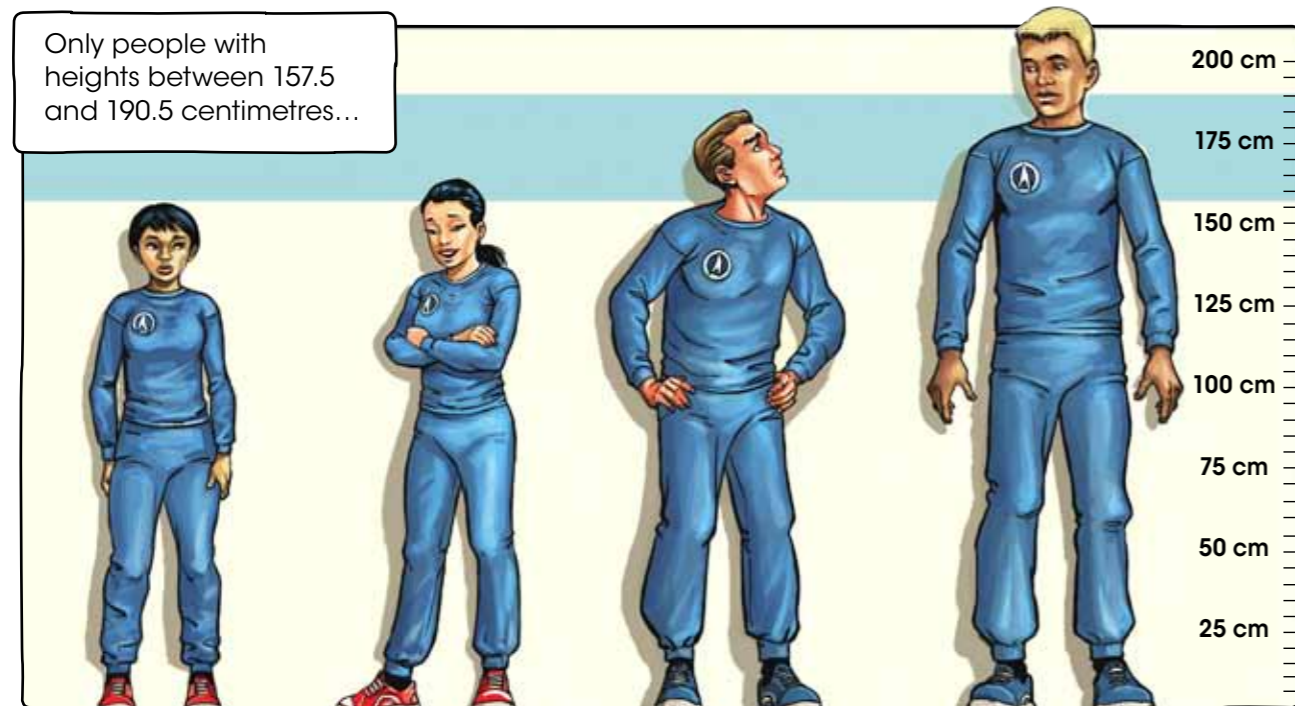
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ASTRONAUT SELECTION

You have been chosen to lead a mission into space and your first task is to select astronauts for your team. Choosing astronauts for space missions is difficult. Applicants must have the correct qualifications and experience.



- 1 How many of the candidates are within the preferred age range?
- 2 Which of the candidates have the correct height to be an astronaut?
- 3 Three of the candidates have the correct height, the preferred age and 20/20 eyesight. Who are they and are they male or female?

WHAT ABOUT THIS?
Find out your own height and see how much more you need to grow to be able to apply to be an astronaut. How much older do you need to be?

THE SIZE OF ROCKETS

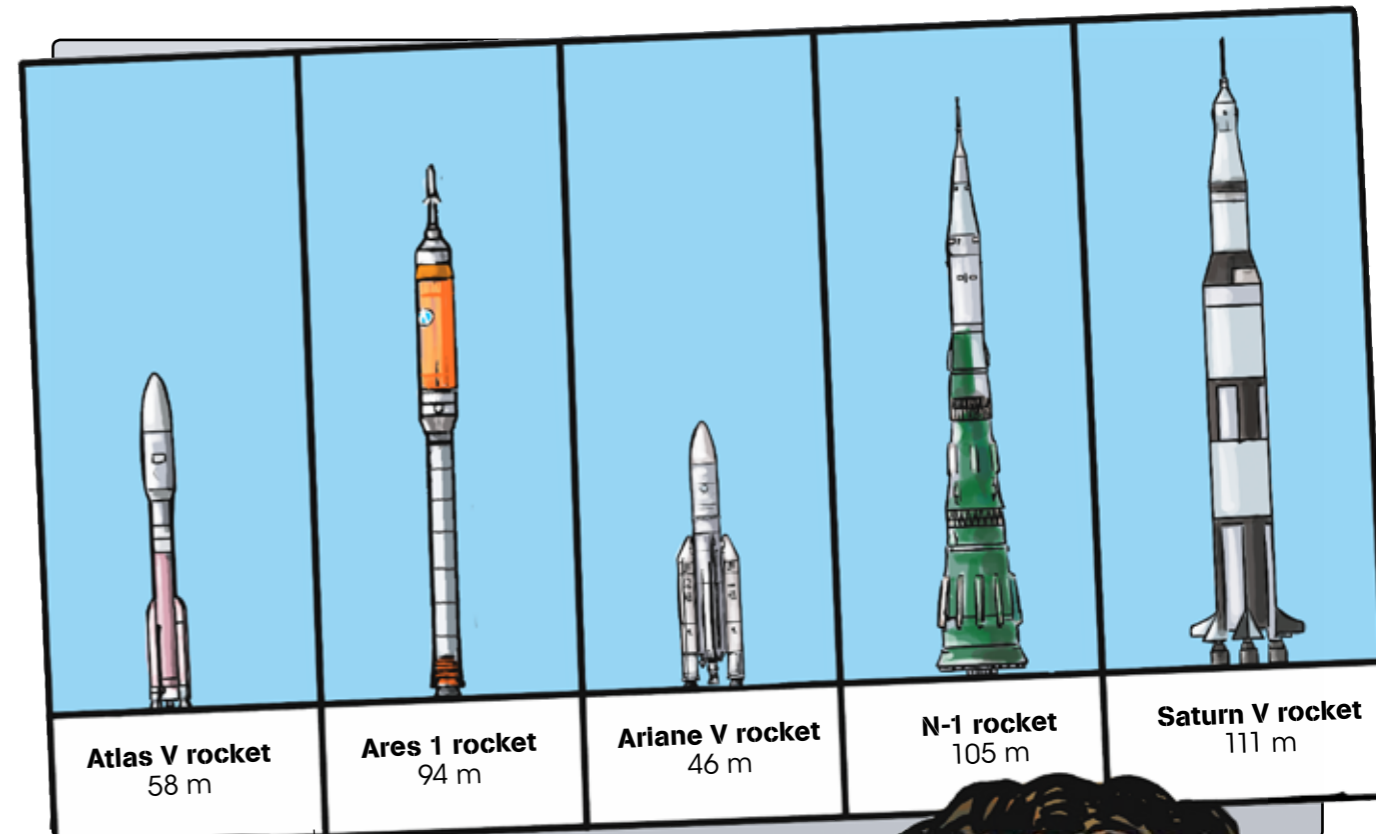
Rockets that carry spacecraft or satellites into space have to be really large. This is to hold all the fuel needed. Your next job is to look at other rockets to see how big yours needs to be.

Did you know that a space rocket can be taller than a 30-storey building?

This table shows the heights of some famous buildings and rockets.



NAME	HEIGHT
Statue of Liberty (New York)	93 m
Westminster Abbey (London)	69 m
St Paul's Cathedral (London)	111 m
Arc de Triomphe (Paris)	50 m
Atlas V rocket	58 m
Ares 1 rocket	94 m
Ariane V rocket	46 m
N-1 rocket	105 m
Saturn V rocket	111 m



- How much taller is:
 - the Atlas V rocket than the Arc de Triomphe?
 - the Ares 1 rocket than Westminster Abbey?
 - the Saturn V rocket than the Statue of Liberty?
- List the five rockets in order of height from shortest to tallest.
- Which rocket is:
 - the same height as St Paul's Cathedral?
 - 12 metres taller than the Statue of Liberty?
 - 23 metres shorter than Westminster Abbey?

- Round the height of each building and rocket to the nearest 10 metres.

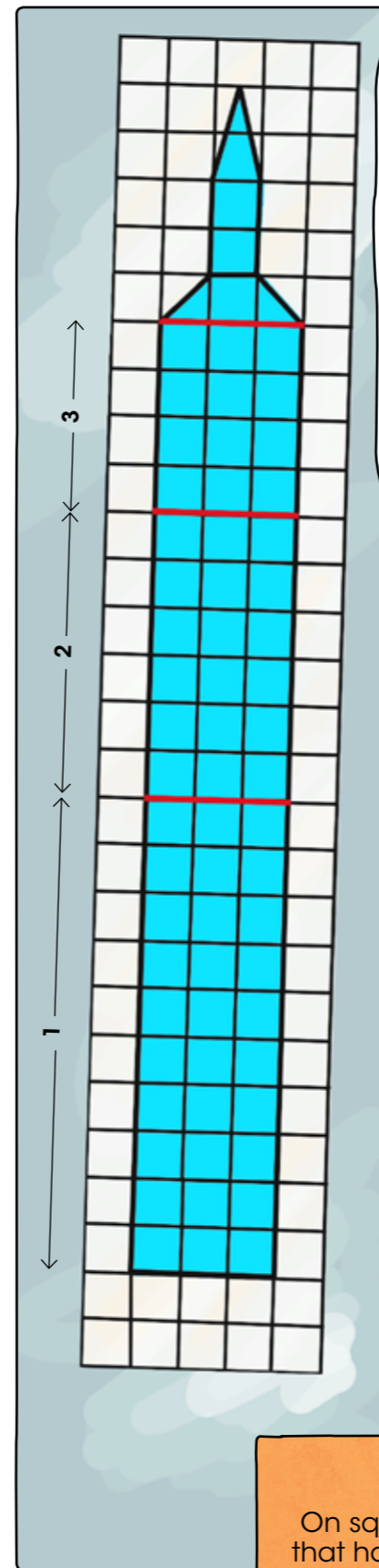
WHAT ABOUT THIS?
Find out the height of other tall buildings in your country and see how much taller they are than the rockets listed here.

ROCKET CONSTRUCTION

A space rocket is built in several parts, called stages. Each stage has its own fuel and rocket engine. Your rocket will need three stages to carry it to outer space.

As the fuel in each stage is burnt up, the stage comes off and falls back to Earth.

Here, stages 1, 2 and 3 drop off leaving only the upper stage to travel into space.

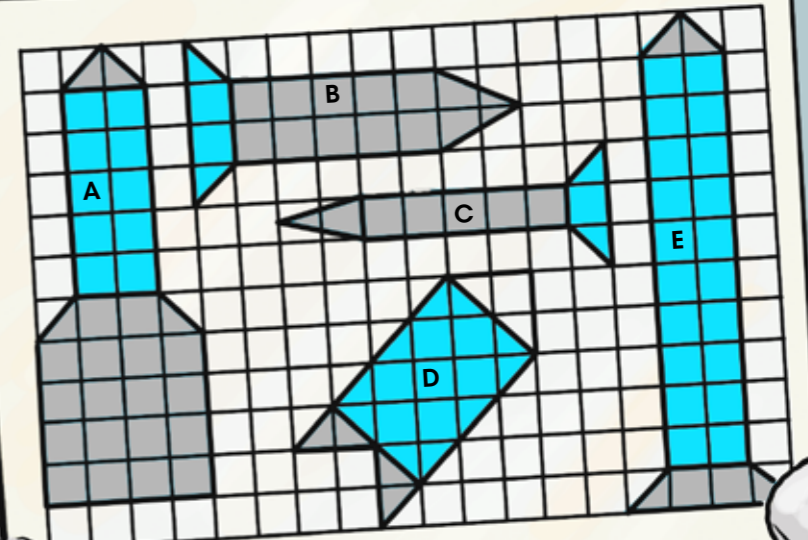


1 Count the number of squares in this picture for:
a) stage 1 b) stage 2 c) stage 3
d) stages 1, 2 and 3 added together.

2 True or false?
a) Stage 1 is $\frac{1}{2}$ the size of stages 1, 2 and 3 put together.
b) Stage 3 is $\frac{1}{5}$ of the size of stages 1, 2 and 3 put together.
c) Stage 2 is $\frac{1}{4}$ of the size of stages 1, 2 and 3 put together.



3 Here are some other pictures of rocket shapes. Count the number of squares and half squares. Write what fraction of each picture is coloured blue.



WHAT ABOUT THIS?

On squared paper, draw a rocket picture that has a total **area** of 24 squares. Colour three-quarters of the rocket red.