REASONING

5ER16

First name _____

Last name _____

School _____

Class _____

Date of birth ◯◯ ◯◯ ◯◯◯◯

Date of test ◯◯ ⓪⑤ ②⓪①⑥

Total score ⬭ (maximum 20)

1 The diagrams show how tall and how wide the mirrors in the telescope are.
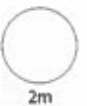
0.75m

1.3m   1.5m

The red arrow shows how **tall** the telescope is.
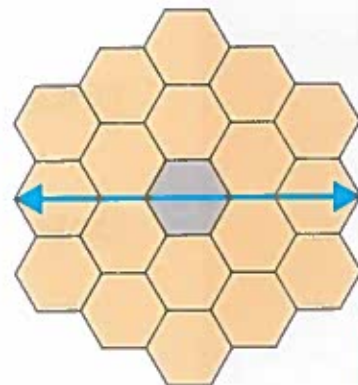
Work out this height.

m tall

2m
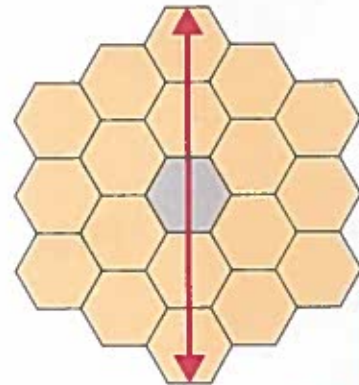
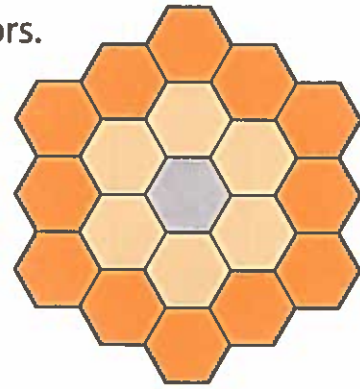The blue arrow shows how **wide** the telescope is.

Work out this width.

m wide

3m

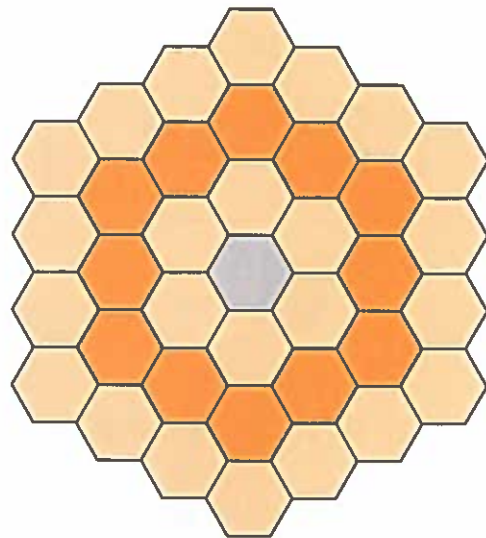The telescope has two 'rings' of hexagonal mirrors.

The 1st ring has 6 mirrors.

The 2nd ring has 12 mirrors.

Scientists would like bigger telescopes!

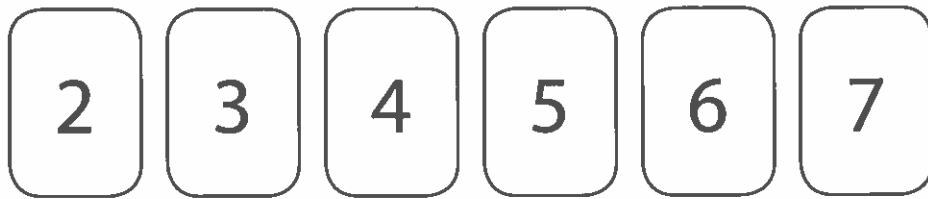The 3rd ring would have 18 mirrors.

The number pattern continues.

A telescope with 4 rings would have a lot of mirrors!

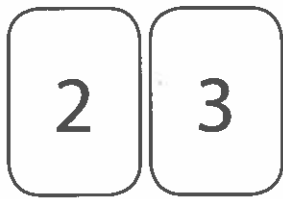Altogether, in **all** the rings, how many mirrors would it have?
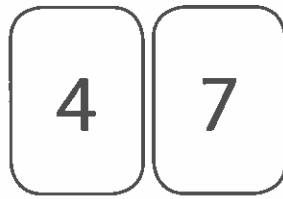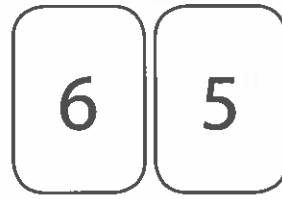
| mirrors altogether |

2m

TOTAL

7m

2 Here are six number cards.

| 2 | 3 | 4 | 5 | 6 | 7 |

The cards can be put in pairs to make different totals.
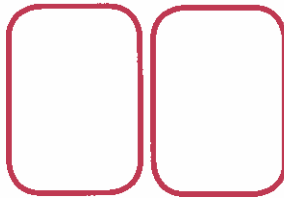
| 2 | 3 |
Total 5

| 4 | 7 |
Total 11

| 6 | 5 |
Total 11

Use all six number cards.

Put them in pairs to make the totals below.
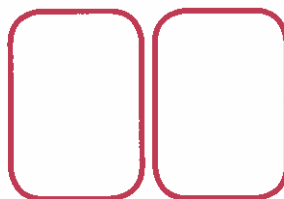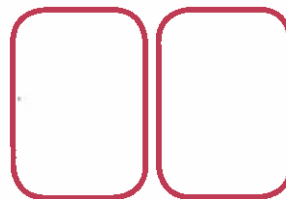
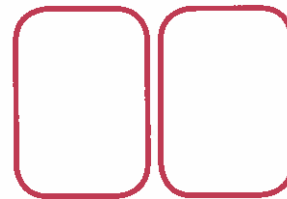| | |
Total 8

| | |
Total 9
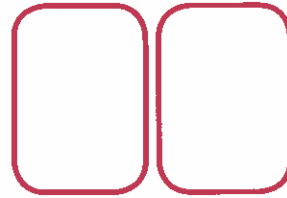
| | |
Total 10

Use all six number cards again.

Show **different** pairs that make the totals.

| | |
Total 8

| | |
Total 9

| | |
Total 10

3 Here are some costs to make potato toys.

pair of eyes cost 10p	eyes **and** hat cost 40p	eyes **and** shoes cost 55p

This potato has eyes, hat and shoes.

Work out the cost.
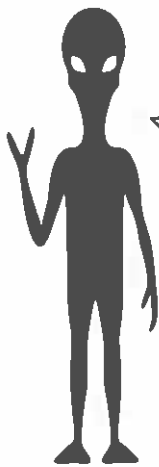
Hint: the answer is **not** 105p.

p

3m

TOTAL

6m

4 Eem lives on planet Sparg.

Ifor lives on planet Earth.

I am 4 Sparg years old.

I am 20 spt tall.

Eem

I am 12 Earth years old.

I am 140 cm tall.

Ifor

1 Sparg year = 2 Earth years

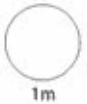How old is Eem in Earth years?

Earth years

How old is Ifor in Sparg years?

Sparg years

Ifor and Eem are the **same** height, so | **1 spt** = cm |

1m

1m

1m

5 In a classroom there are . . .

- 28 pupils

- 1 chair for each pupil and 1 table for each pair

- a teacher

- a chair for the teacher and her own table.

The people, the chairs and the tables all have legs.

Altogether, how many legs are there?

legs

7

TOTAL

7m