National Numeracy Tests

REASONING

9ER15

First name _____

Last name _____

School _____

Class _____

Date of birth ○○ ○○ ○○○○

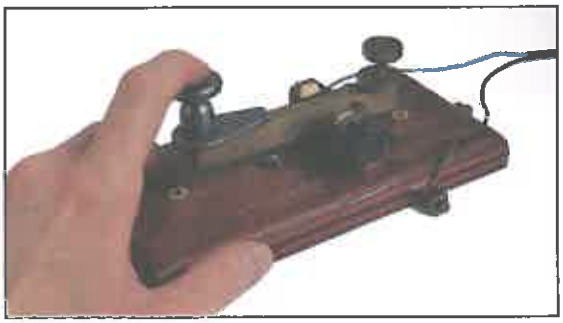
Date of test ○○ ○○ 2015

Total score ☐ (maximum 20)

128956

Llywodraeth Cymru
Welsh Government

1



International Morse code:

each ● takes 1 unit of time

each — takes 3 units of time

each 'in-between' takes 1 unit of time.

The code for **J** is ● — — —

How many units of time does it take?

(Remember the in-between units!)

1m

Three letters have different codes.

Each of these codes takes **5** units of time.

What are the **three codes**?

2m

Every letter in the English alphabet has a different code.

Explain why each of these codes **must** have an **odd** number of units of time.

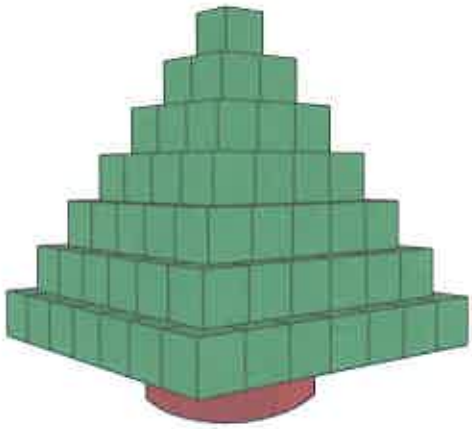
3m

TOTAL

6m

2 This 'Christmas tree' is made from cubes that are all the same size.

They are arranged in **seven layers** to form a solid square-based pyramid.



In each layer, the cubes around the perimeter are green and the others are white, e.g.

layer four

Altogether, how many **white cubes** are there?

Show how you know.

white cubes

4m

3 In a hurdle race, each runner jumps over hurdles.

400 metre race: **ten hurdles** altogether		
Start to the first hurdle	Distance between each pair of hurdles	Last hurdle to the end
45m	35m	40m

Nia wants to have ten hurdles in a 625 metre race.

625 metre race: **ten hurdles** altogether		
Start to the first hurdle	Distance between each pair of hurdles	Last hurdle to the end
45m	?	40m

What should the distance between each pair of hurdles be?

m

4m

TOTAL

8m

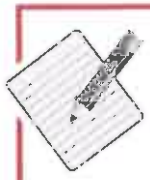
4

My 13th birthday was on a Friday.

My 14th birthday was on a Saturday.

There are **365** days in a year (or 366 in a leap year).

How does that explain why your birthday is usually **1 day later** each year?



2m

5 In a survey in a restaurant:

two-thirds of the people said the food was good, and

one-quarter of people said it was average.

Five people said the food was poor.

How many people took part in the survey?

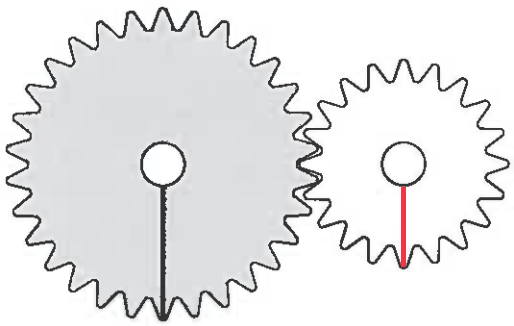
people

2m

6 Here are two cogs.

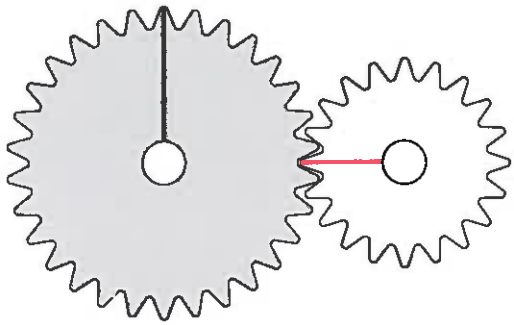
The bigger cog has **30 teeth**.

The smaller cog has **20 teeth**.



The bigger cog turns **180 degrees clockwise**.

Give reasons why the line on the smaller cog must now be in this position.



2m

TOTAL

6m

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