

# NUMERACY

## Y2

Reasoning  
sample  
materials

National Numeracy Tests



Llywodraeth Cymru  
Welsh Government

## Reasoning sample materials: Guidance for teachers

The reasoning tests will be first introduced in schools in 2014. It is therefore important that teachers and learners become increasingly familiar with the requirements in the framework to identify processes and connections, to represent and communicate, and to review.

Sample items have been produced for each year group to illustrate different question types and formats for response. Each year group contains one stimulus item, presented through PowerPoint, which requires information to be shown by the teacher immediately before the test begins.

The purpose of the stimulus material is to allow learners to engage with unfamiliar contexts. A teacher script is provided but teachers may use their own words provided no help is given with the numeracy that is to be assessed.

The sample items are representative of the anticipated level of demand. However, they are not complete papers: the number of marks within the live tests will be about 20 for each year group, with one stimulus item followed by between four and eight additional questions. In 2014 each reasoning test will last 30 minutes. The time taken to deliver the stimulus is in addition to this assessment time.

### • *How to use the sample items*

The sample items can be printed and used for practice before the tests. Strengths and areas for improvement can then be identified and used to provide additional classroom learning and teaching activities, where appropriate.

The reasoning sample items can also be used as a basis for classroom discussion, to illustrate good test techniques. These include the importance of reading the question carefully, where to write the answers, the importance of showing working to enable others to understand the reasoning applied, good time management and the benefits of checking answers.

As importantly, the sample items can be used to promote understanding of good responses to open questions. For example, teachers could anonymise and photocopy a range of responses and ask learners to work in small groups to rank from 'best' to 'worst', identifying what is good about each and why.

### • *Marking of the sample items*

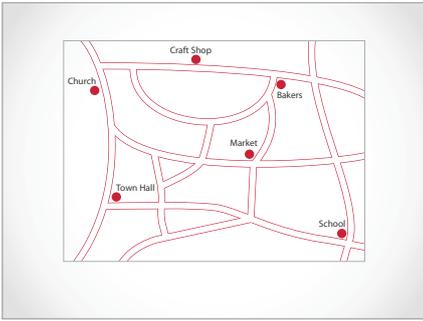
A markscheme is provided which is typical of those to be used alongside the live tests. It includes a range of likely responses with clear guidance on when and how partial credit should be applied. General marking guidance provides principles of marking to facilitate consistency across schools.

## Presentation to be shown to learners before doing question 1

The text in the right-hand boxes should be read to learners. Teachers can use their own words, or provide additional explanation of contexts, if necessary. However, no help must be given with the numeracy that is to be assessed.

Slide 1		<p>Can you tell me about this photograph? What do you think it is showing?</p> <p><i>(Encourage discussion.)</i></p> <p>That's right, it shows people dressed up in costumes like kings and queens. They have dressed up for a carnival. They are sitting on a small lorry that is called a float.</p>
Slide 2		<p>Here is a photograph of a bigger float that is in the carnival.</p> <p>Some of the floats are very big. Some are medium, and some are small.</p>
Slide 3		<p>And some of the floats have people who walk alongside them.</p> <p>All the floats go along the road so that people can watch them and admire the floats as they go past.</p> <p>The floats go really slowly, one after the other in a long line.</p>

Slide 4



Here is a map of a town. The people that live in the town planned where the floats in their carnival would go.

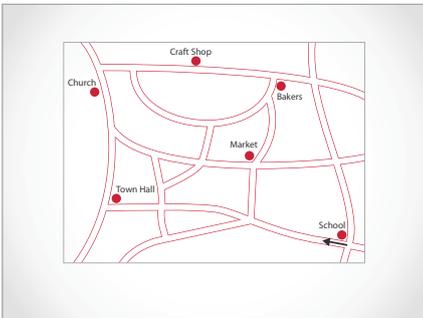
What are these red lines? That's right, they are roads.

And what are the red circles? Well done, they show where different places are in the town.

Can you show me where the Town Hall is? And where is the Craft Shop?

Now show me the School.

Slide 5



The floats started here at the School. Which way did they go? That's right, they went this way (*point*) because the arrow is showing their direction.

Slide 6



The clock shows the time when the carnival started and the first float left the School. What time was it? Well done, it was 2 o'clock.

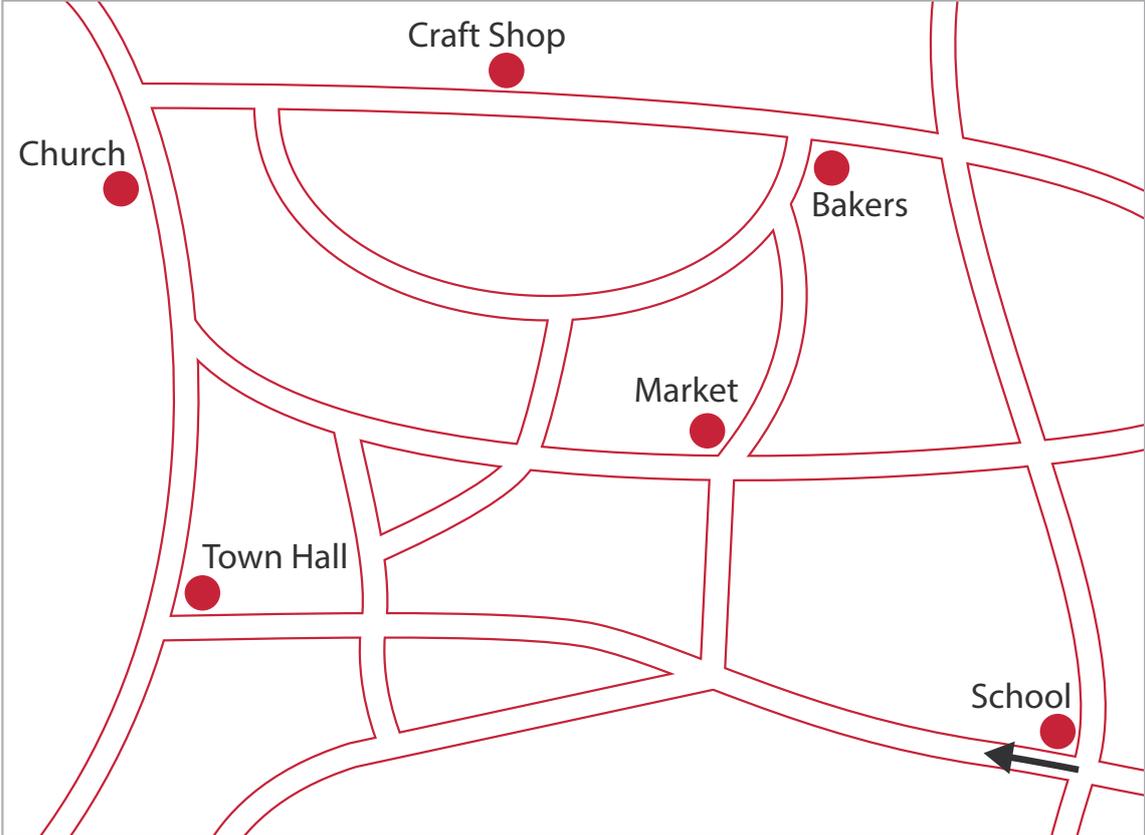
The floats went past other places at different times. You are going to use the clocks to find the route – which roads the floats went on.

All the information you need is in your booklet. Remember to show your working so that someone else can understand what you are doing and why. When you have finished there are other questions to answer.

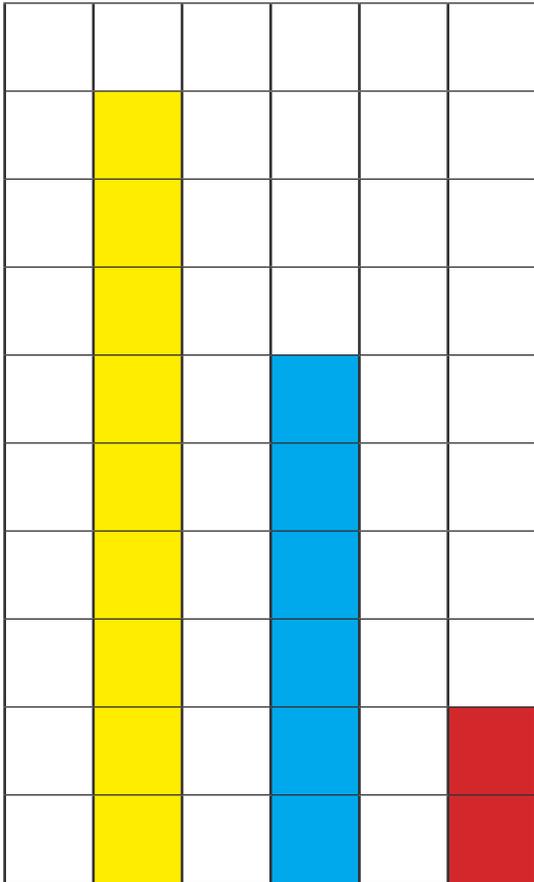
1



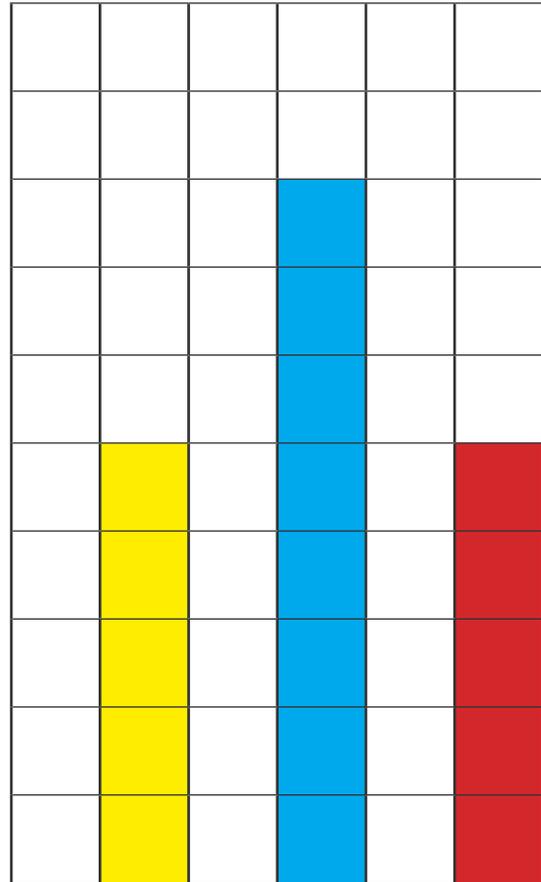
Use the clocks. Draw their route on the map.



**Floats last year**



**Floats this year**



Key:



**1 big** float



**1 medium** float



**1 small** float

How many **more** floats this year than last year?

more



2 Joe has these coins.



He changes **each 5p** coin for **one 1p** coin and **two 2p** coins.

How many coins does Joe have?



number of **1p** coins =



number of **2p** coins =



Then Joe changes **each 2p** coin for **two 1p** coins.

**Altogether**, how many **1p** coins does he have now?



3



1 car and 1 ball cost **70p**.



2 balls cost **40p**.



How much for **3 cars**?



3m

## Reasoning sample materials: Marking guidance

It is important that the tests are marked accurately. The questions and answers below help to develop a common understanding of how to mark fairly and consistently.

- ***Must learners use the answer boxes?***

Provided there is no ambiguity, learners can respond anywhere on the page. If there is more than one answer the one in the answer box must be marked, even if incorrect. However, if the incorrect answer is clearly because of a transcription error (e.g. 65 has been copied as 56), mark the answer shown in the working.

- ***What if learners use a method that is not shown within the markscheme?***

The markschemes show the most common methods, but alternative approaches may deserve credit – use your professional judgement. Any correct method, however idiosyncratic, is acceptable.

- ***Does it matter if the learner writes the answer differently from that shown in the markscheme?***

Numerically equivalent answers (e.g. eight for 8, or two quarters or 0.5 for half) should be marked as correct unless the markscheme states otherwise.

- ***How should I mark answers involving money?***

Money can be shown in pounds or pence, but a missing zero, e.g. £4.7, should be marked as incorrect.

- ***How should I mark answers involving time?***

In the real world, specific times are shown in a multiplicity of ways so accept, for example, 02:30, 2.30, half past 2, etc. Do not accept 2.3 as this is ambiguous. The same principle should be used for marking time intervals, e.g. for two and a half hours accept 2.5 but not 2.5pm.

- ***What if the method is wrong but the answer is correct?***

Unless the markscheme states otherwise, correct responses should be marked as correct even if the working is incorrect as learners may have started again without showing their revised approach.

- ***What if the learner has shown understanding but has misread information in the question?***

For a two (or more) mark item, if an incorrect answer arises from misreading information given in the question and the question has not become easier as a result then deduct one mark only. For example, if the 2 mark question is  $86 \times 67$  and the learner records  $96 \times 67$  then gives the answer 6432, one mark only should be given. In a one mark question, no marks can be given.

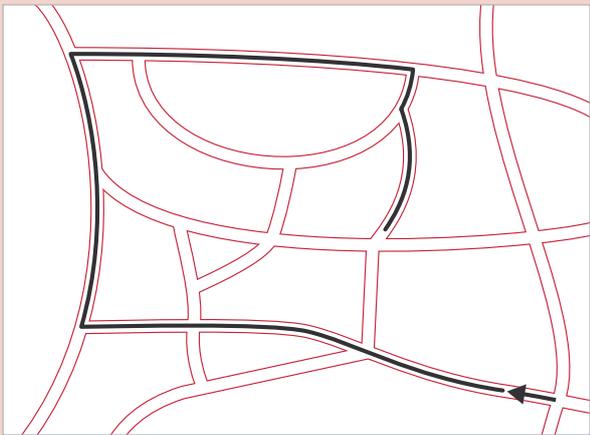
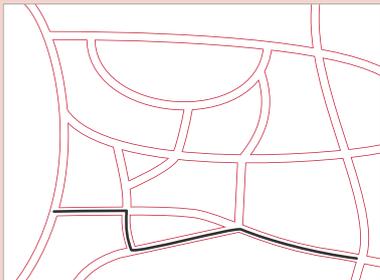
- ***What should I do about crossed out work?***

Working which has been crossed out and not replaced can be marked if it is still legible.

- ***What is the difference between a numerical error and a conceptual error?***

A numerical error is one in which a slip is made, e.g. within  $86 \times 67$  the learner works out  $6 \times 7 = 54$  within an otherwise correct response. A conceptual error is a more serious misunderstanding for which no method marks are available, for example if  $86 \times 60$  is recorded as 516 rather than 5160

## Year 2 Reasoning sample materials: Markscheme

Q	Marks	Answer	Comments
1i	3m	Shows the correct route: 	Accept alternative routes that do not go past places identified on the map, e.g. from the School to the Town Hall accept 
	<b>Or</b> 2m	Starts by going from the School to the Town Hall to the Church Or Finishes by going from the Craft Shop to the Bakers to the Market	
	<b>Or</b> 1m	Starts by going from the School to the Town Hall Or Finishes at the Market	
1ii	3m	1 more	
	<b>Or</b> 2m	Shows all three correct differences, e.g. <ul style="list-style-type: none"> <li>• Down 4, up 2, up 3</li> <li>• 4, 2, 3</li> </ul> Or Shows 17 <b>and</b> 18	
	<b>Or</b> 1m	Shows any two correct differences Or Shows 17 <b>or</b> 18	

Q	Marks	Answer	Comments
2i	1m	3	
2ii	1m	6	
2ii	1m	15	As the question assesses conservation of money, do not allow follow through from incorrect values given earlier in the question
3	3m	150p or £1.50	For 3m, units must be shown
	<b>Or</b> 2m	Shows or implies 3 lots of 50p, e.g. <ul style="list-style-type: none"> <li>• 150</li> <li>• 1.50</li> <li>• <math>50 \times 3</math></li> <li>• <math>50 + 50 + 50</math></li> </ul>	
	<b>Or</b> 1m	Shows or implies that a ball costs 20p	

