

# Reasoning and Problem Solving

## Step 5: Writing Time

### National Curriculum Objectives:

Mathematics Year 1: (1M2) [Measure and begin to record time \(hours, minutes, seconds\)](#)

### Differentiation:

Questions 1, 4 and 7 (Reasoning)

**Developing** Determine and explain whether a statement about time is always or never true. Includes seconds and hours.

**Expected** Determine and explain whether a statement about time is always or sometimes true. Includes seconds, minutes and hours.

**Greater Depth** Determine and explain whether a statement about time is always, sometimes or never true. Includes seconds, minutes and hours and time measuring equipment.

Questions 2, 5 and 8 (Reasoning)

**Developing** Determine and explain whether a unit of time or timing equipment is suitable for the given activity. Includes seconds and hours.

**Expected** Determine and explain whether a unit of time and timing equipment is suitable for the given activity. Includes seconds and minutes.

**Greater Depth** Determine and explain whether a unit of time and timing equipment is suitable for the given activity. Includes seconds, minutes and hours with possible use of more than one measurement of time.

Questions 3, 6 and 9 (Problem Solving)

**Developing** Explore the given task to estimate an amount within a time limit, then carry out the task and compare results. Includes 10 second intervals

**Expected** Explore the given task to estimate an amount within a time limit, then carry out the task and compare results. Includes 30 second intervals and minutes.

**Greater Depth** Explore the given task to estimate an amount within a time limit, then carry out the task and compare results. Includes 10 second intervals and minutes.

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## Writing Time

1a. Is this statement always or never true?

- A film is measured in seconds.

How do you know?



R

## Writing Time

1b. Is this statement always or never true?

- Pouring a bowl of cereal is measured in hours.

How do you know?



R

2a. Skyla says,



I'm going to try and kick 2 balls. I'm going to measure the time it takes in seconds.

Is this a sensible unit of time to use?

Why?



R

2b. Ibrahim says,



I'm going on a bike ride. I'm going to measure the time it takes using a sand timer.

Is this the correct equipment to use?

Why?



R

3a. Use a pencil and a sheet of paper.

How many times do you think you can write the number '5' in 10 seconds?

Now try it.

How many more could you write in:

- 20 seconds?
- 30 seconds?

Was your estimation correct?



PS

3b. Use some bean bags and a hoop.

How many bean bags do you think you can throw into the hoop in 10 seconds?

Now try it.

How many more could you throw in:

- 20 seconds?
- 30 seconds?

Was your estimation correct?



PS

## Writing Time

4a. Are these statements always or sometimes true?

1. A race is measured in seconds.
2. An aeroplane flight around the world is measured in hours.

How do you know?



R

## Writing Time

4b. Are these statements always or sometimes true?

1. A long car journey is measured in hours.
2. A train journey is measured in minutes.

How do you know?



R

5a. Sam says,



I'm going on a long car journey. I'm going to use a stop-watch and measure the time it takes in seconds.

1. Is this a sensible unit of time to use?
2. Is this the correct equipment to use?

Why?



R

5b. Zainab says,



I'm baking a cake. I'm going to use a sand timer and measure the time it takes in minutes.

1. Is this a sensible unit of time to use?
2. Is this the correct equipment to use?

Why?



R

6a. Use some counters and a container.

How many counters do you think you can put in a pot in 30 seconds if you do them one at a time?

Now try it.

How many more could you do in:

- 1 minute?
- 1 minute and 30 seconds?

Was your estimation correct?



PS

6b. Use some cubes or building bricks.

How many cubes or bricks do you think you can stack in 30 seconds?

Now try it.

How many more could you stack in:

- 1 minute?
- 1 minute and 30 seconds?

Was your estimation correct?



PS

## Writing Time

7a. Are these statements always, sometimes or never true?

1. A sand timer is used to measure the time to boil an egg.
2. Peeling a banana is measured in seconds.
3. A day is measured in hours.

How do you know?



R

## Writing Time

7b. Are these statements always, sometimes or never true?

1. Playtime is measured in minutes.
2. A stopwatch is used to time a 100m sprint race.
3. A clock is used to measure time throughout the day.

How do you know?



R

8a. Anya says,



We are going on a boat to Spain and then driving to a camp site. I'm going to use my wrist-watch and measure the time it takes in minutes.

1. Is this a sensible unit of time to use?
2. Is this the correct equipment to use?

Why?



R

8b. Seb says,



We are driving to the fair and then going on the Big Dipper and Big Wheel. I'm going to use a sand timer and measure the time it takes in seconds.

1. Is this a sensible unit of time to use?
2. Is this the correct equipment to use?

Why?



R

9a. Use a dice.

How many times do you think you can roll a number higher than four in 1 minute?

Now try it.

How many more could you roll in:

- 1 minute and 30 seconds?
- 2 minutes?
- 2 minutes and 10 seconds?

Was your estimation correct?



PS

9b. Use a pencil and sheet of paper.

Draw a circle inside a triangle. How many do you think can you draw in 1 minute?

Now try it.

How many more could you draw in:

- 1 minute and 30 seconds?
- 2 minutes?
- 2 minutes and 10 seconds?

Was your estimation correct?



PS

## Reasoning and Problem Solving Writing Time

### Developing

- 1a. Never, because films always last longer than seconds. They are usually measured in hours.
- 2a. Yes, because it only takes seconds to kick a ball.
- 3a. Answers will vary.

### Expected

- 4a. 1. Sometimes, because it depends on the type of race. For example: a sprint would be measured in seconds.  
2. Always, because flight journeys around the world will last longer than seconds and minutes.
- 5a. 1. No, because long car journeys usually last more than an hour. 2. No, because stop-watches are better used to measure seconds/minutes.
- 6a. Answers will vary.

### Greater Depth

- 7a. 1. Sometimes, because a sand timer can be the correct amount of minutes.  
2. Always, because it is quick and easy to peel a banana.  
3. Always, because there are 24 hours in a day.
- 8a. 1. No, because the journey and multiple transport methods are likely to take longer than an hour.  
2. Yes, because hours are easily measured on a wrist-watch.
- 9a. Answers will vary.

## Reasoning and Problem Solving Writing Time

### Developing

- 1b. Never, because pouring a bowl of cereal only takes a few seconds.
- 2b. Various answers, for example: No, because a sand timer would be difficult to carry while riding a bicycle; a bicycle ride is likely to last longer than an average sand timer.
- 3b. Answers will vary.

### Expected

- 4b. 1. Always, because a long car journey is likely to last longer than an hour.  
2. Sometimes, because it depends where you are travelling. Shorter journeys are measured in minutes and longer journeys are measured in hours.
- 5b. 1. Yes, because cakes usually take less than an hour to bake.  
2. No, sand timers usually last for less than 10 minutes.
- 6b. Answers will vary.

### Greater Depth

- 7b. 1. Sometimes, because playtime is usually shorter than an hour.  
2. Always, because a stop-watch is the most efficient way to measure seconds.  
3. Always, because a clock is what we use in everyday circumstances to measure the time of day.
- 8b. 1. No, because a trip to the fair is likely to be a day trip which will last for hours.  
2. No, because an average sand timer only lasts for minutes, not hours and will be impractical to use at a fair.
- 9b. Answers will vary.