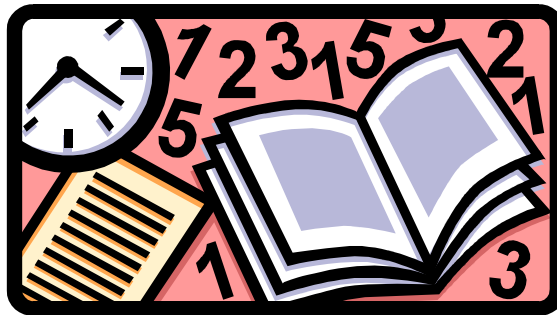


Smoking Education Through Numeracy



Lesson Planners



NB: It is important to note that the costs of tobacco referred to in this pack are not true costs. They are rounded numbers to support the calculations to be undertaken.

Smoking Education Through Numeracy

FRACTIONS AND DECIMALS

Pupils should be taught to:	Year 5	Year 6
<p>Find fractions of numbers or quantities.</p> <p>Understand percentage as the number of parts in every 100, recognise the equivalence between percentages and fractions and decimals, and find simple percentages of numbers or quantities.</p> <p>Develop calculator skills and use these skills effectively.</p>	<p>As outcomes, Year 5 pupils should, for example:</p>	<p>As outcomes, Year 6 pupils should, for example:</p>
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><u>Resources</u></p> <p>Leaflets on not smoking Fact sheets on smoking – see www.ash.org.uk or www.freshne.com</p> </div>	<p><i>Use a calculator to answer questions such as:</i></p> <p>In Year 7 of Anytown Comprehensive School, there are * pupils. 2% of the boys and 4% of the girls smoke regularly. By the age of 15, 10% of the boys and 15% of the girls smoke regularly.</p> <ul style="list-style-type: none"> • How many boys in Year 7 smoke? • How many girls in Year 7 smoke? • How many children in Year 7 do not smoke? • What percentage of boys aged 15 do not smoke? <p>* Numbers can be altered to suit your pupils.</p>	<p><i>Use a calculator to answer questions such as:</i></p> <p>In Year 7 of Anytown Comprehensive School, there are 400 pupils. 8 boys and 16 girls smoke regularly. By the age of 15, 10% of the boys and 15% of the girls smoke regularly.</p> <ul style="list-style-type: none"> • What percentage of boys in Year 7 and what percentage of girls in Year 7 smoke regularly? • What fraction of boys in Year 7 smoke regularly? • Write down as a decimal the number of girls in Year 7 who do not smoke. • How many more boys smoke when they are 15 than in Year 7?

Smoking Education Through Numeracy

FRACTIONS AND DECIMALS

Pupils should be taught to:	Year 4	Year 5	Year 6
<p>Find fractions of numbers or quantities.</p> <p>Understand percentage as the number of parts in every 100, recognise the equivalence between percentages and fractions and decimals, and find simple percentages of numbers or quantities.</p>	<p>As outcomes, Year 4 pupils should, for example:</p>	<p>As outcomes, Year 5 pupils should, for example:</p>	<p>As outcomes, Year 6 pupils should, for example:</p>
<div data-bbox="344 603 689 991" style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;"><u>Resources</u></p> <p>Leaflets on not smoking Fact sheets on smoking – see www.ash.org.uk or www.freshne.com</p> </div> <p>† Year 4 teachers could do more work on equivalent fractions before progressing to the next set of questions.</p>	<p>Answer questions such as:</p> <p>1/5 of the * adults living in Anytown smoke cigarettes.</p> <p>In Puffer Lane, where * adults live, 1/4 of them smoke cigarettes.</p> <ul style="list-style-type: none"> • In Puffer Lane, what fraction of adults are non-smokers? • In Puffer Lane, how many adults do not smoke? • In Puffer Lane, how many adults smoke cigarettes? <p>† * Numbers can be altered to suit your pupils</p>	<p>Answer questions such as:</p> <p>1/5 of the * adults living in Anytown smoke cigarettes.</p> <p>In Puffer Lane, where * adults live, 0.25 of them smoke cigarettes.</p> <ul style="list-style-type: none"> • In Puffer Lane, what fraction of adults are non-smokers? • In Puffer Lane, how many adults do not smoke? <p>In Puffer Lane, how many adults smoke cigarettes?</p> <p>* Numbers can be altered to suit your pupils</p>	<p>Answer questions such as:</p> <p>1/5 of the * adults living in Anytown smoke cigarettes.</p> <p>In Puffer Lane, where * adults live, 3/5 of them smoke cigarettes.</p> <ul style="list-style-type: none"> • In Puffer Lane, what fraction of adults are non-smokers? • In Puffer Lane, what percentage of the adults smoke? <p>* Numbers can be altered to suit your pupils</p>

Problem Solving In Maths

Name

Date

The word problem

Underline the important words and numbers in the problem.

Calculation needed

Answer to the calculation

Read the problem again!

Solution to the problem

Smoking Education Through Numeracy

SOLVING PROBLEMS

Pupils should be taught to:	Year 4	Year 5	Year 6
<p>Use all four operations to solve word problems involving numbers in 'real life'</p>	<p>As outcomes, Year 4 pupils should, for example:</p> <p>Solve 'story' problems about numbers in real life, choosing the appropriate operation and method of calculation.</p> <p>Explain and record using numbers, signs and symbols how the problem was solved.</p>	<p>As outcomes, Year 5 pupils should, for example:</p> <p>Solve 'story' problems about numbers in real life, choosing the appropriate operation and method of calculation.</p> <p>Explain and record using numbers, signs and symbols how the problem was solved.</p>	<p>As outcomes, Year 6 pupils should, for example:</p> <p>Solve 'story' problems about numbers in real life, choosing the appropriate operation and method of calculation.</p> <p>Explain and record using numbers, signs and symbols how the problem was solved.</p>
<p>* For Special Needs pupils, cigarettes could be sold in packets of 10.</p> <p>† Numbers can be altered to suit your pupils</p>	<p style="text-align: center;"><u>Examples of problems</u></p> <p><i>Single-step operations</i></p> <p>There are 20* cigarettes in one packet.</p> <ul style="list-style-type: none"> • How many cigarettes are there in 5 packets? • How many cigarettes are there in 10 packets? <p>Out of a packet of 20, Tony smokes † cigarettes</p> <ul style="list-style-type: none"> • How many cigarettes are left? 	<p style="text-align: center;"><u>Examples of problems</u></p> <p><i>Single-step operations</i></p> <p>There are 20* cigarettes in one packet.</p> <ul style="list-style-type: none"> • How many cigarettes are there in 100 packets? <p>Five friends bought 1 000 cigarettes. Altogether they smoked 457 cigarettes.</p> <ul style="list-style-type: none"> • How many cigarettes were left? 	<p style="text-align: center;"><u>Examples of problems</u></p> <p><i>Single-step operations</i></p> <p>There are 20* cigarettes in one packet.</p> <ul style="list-style-type: none"> • How many cigarettes are there in 300 packets? <p>A supermarket buys 10 000 packets of cigarettes in March and sells 8 309 packets.</p> <ul style="list-style-type: none"> • How many packets were left?

Pupils should be taught to:	Year 4	Year 5	Year 6
<p>Use all four operations to solve word problems involving numbers in 'real life'</p> <p>† Numbers can be altered to suit your pupils</p> <p>∞ Use numbers that will involve rounding up or down</p>	<p>Tony buys 140 cigarettes a week. By Thursday he has smoked †∞ cigarettes.</p> <ul style="list-style-type: none"> • How many packets has he got left for the rest of the week? • How many packets has he got left for the rest of the week? 	<p>Multi-step operations</p> <p>There are 20* cigarettes in one packet.</p> <ul style="list-style-type: none"> • How many cigarettes are there in 100 packets? <p>Five friends bought 1 000 cigarettes. Two of the friends smoked 210 cigarettes between them and the other three friends smoked 247 cigarettes.</p> <ul style="list-style-type: none"> • How many cigarettes have they smoked altogether? • How many cigarettes were left? • If they shared the remaining cigarettes equally between them, how many cigarettes would they each have? 	<p>Multi-step operations</p> <p>There are 20* cigarettes in one packet.</p> <ul style="list-style-type: none"> • How many cigarettes are there in 300 packets? <p>A supermarket buys 10 000 packets of cigarettes in March and sells 3 200 packets in the first week, only 500 packets in the second week as it includes No Smoking Day, 1 150 packets in the third week and in the final week it sold 1 063 packets.</p> <ul style="list-style-type: none"> • How many packets did the supermarket sell altogether in March? • How many packets were left at the end of the month?

Smoking Education Through Numeracy

SOLVING PROBLEMS

Pupils should be taught to:	Year 4	Year 5	Year 6
<p>Use all four operations to solve word problems involving numbers in 'real life'</p>	<p>As outcomes, Year 4 pupils should, for example:</p> <p>Solve 'story' problems about numbers in real life, choosing the appropriate operation and method of calculation.</p> <p>Explain and record using numbers, signs and symbols how the problem was solved.</p>	<p>As outcomes, Year 5 pupils should, for example:</p> <p>Solve 'story' problems about numbers in real life, choosing the appropriate operation and method of calculation.</p> <p>Explain and record using numbers, signs and symbols how the problem was solved.</p>	<p>As outcomes, Year 6 pupils should, for example:</p> <p>Solve 'story' problems about numbers in real life, choosing the appropriate operation and method of calculation.</p> <p>Explain and record using numbers, signs and symbols how the problem was solved.</p>
<p>* Use writing frames for pupils with special needs</p>	<p style="text-align: center;"><u>Examples of problems</u></p> <p><i>Single-step operations</i></p> <ul style="list-style-type: none"> If one person in the UK dies every 5 minutes as a result of smoking, how many would die in 10 minutes?... 30 minutes?... 1 hour? * 	<p style="text-align: center;"><u>Examples of problems</u></p> <p><i>Single- and Multi-step operations</i></p> <ul style="list-style-type: none"> If one person in the UK dies every 5 minutes as a result of smoking, how many would die in 10 minutes?... 30 minutes?... 1 hour?... 1 day?... 1 week?... 1 month? * 	<p style="text-align: center;"><u>Examples of problems</u></p> <p><i>Single- and Multi-step operations</i></p> <ul style="list-style-type: none"> If one person in the UK dies every 5 minutes as a result of smoking, how many would die in 10 minutes?... 30 minutes?... 1 hour?... 1 day?... 1 week?... 1 month?... 10 years? *

Smoking Education Through Numeracy

SOLVING PROBLEMS

Pupils should be taught to:	Year 4	Year 5	Year 6
Develop calculator skills and use a calculator effectively	<p>As outcomes, Year 4 pupils should, for example:</p> <p>Use a calculator to check mental calculations in response to questions such as:</p> <p style="text-align: center;"><u>Examples of problems</u></p> <p><i>Single-step operations</i></p> <ul style="list-style-type: none"> 5 000 accidental home fires in the UK are caused each year by cigarettes and matches. How many fires happen in 6 months?... 1 month? 	<p>As outcomes, Year 5 pupils should, for example:</p> <p>Use a calculator, where appropriate, to respond to questions such as:</p> <p style="text-align: center;"><u>Examples of problems</u></p> <p><i>Single- and Multi-step operations</i></p> <ul style="list-style-type: none"> 5 400 accidental home fires in the UK are caused each year by cigarettes and matches. How many fires happen in 6 months?... 3 months?... 1 month?... 1 week? 	<p>As outcomes, Year 6 pupils should, for example:</p> <p>Use a calculator, where appropriate, to respond to questions such as:</p> <p style="text-align: center;"><u>Examples of problems</u></p> <p><i>Single- and Multi-step operations</i></p> <ul style="list-style-type: none"> 5 400 accidental home fires in the UK are caused each year by cigarettes and matches. How many fires happen in 6 months?... 3 months?... 1 month?... 1 week?... 1 day? If on average \square house fires happen in a day, how many on average would occur in 3 days?
	<ul style="list-style-type: none"> Out of 500 15 year olds, 120 have tried smoking a cigarette. How many of the 500 have never tried one? <p><i>(NB: Schools may wish to</i></p>	<ul style="list-style-type: none"> Out of 1 000 15 year olds, 443 have tried smoking a cigarette. How many of the 1 000 have never tried one? If 40% of 15 year olds have tried a cigarette. How many 	<ul style="list-style-type: none"> Out of 1 000 15 year olds, 443 have tried smoking a cigarette. How many of the 1 000 have never tried one? What percentage of the 1 000 15 year olds have tried a

Pupils should be taught to:	Year 4	Year 5	Year 6
	<i>substitute the example statistics with current date to reflect today's social norms)</i>	young people is this? <i>(NB: Schools may wish to substitute the example statistics with current date to reflect today's social norms)</i>	cigarette? <i>(NB: Schools may wish to substitute the example statistics with current date to reflect today's social norms)</i>
Develop calculator skills and use a calculator effectively			<ul style="list-style-type: none"> • What percentage of the 1 000 15 year olds have never tried one? • In a class of 25 pupils, how many pupils would not have tried smoking a cigarette?
	<ul style="list-style-type: none"> • Out of every 100 teenagers alive today who smoke throughout their lives, the chances are that 50 will die before their time from diseases caused by smoking. What fraction of the 100 teenagers would this be? 	<ul style="list-style-type: none"> • Out of every 100 teenagers alive today who smoke throughout their lives, the chances are that 50 will die before their time from diseases caused by smoking. What fraction of the 100 teenagers would this be? • What percentage would this fraction be? 	<ul style="list-style-type: none"> • Out of every 1 000 teenagers alive today who smoke throughout their lives, the chances are that 500 will die before their time from diseases caused by smoking and 6 of them will be killed as a result of a road accident. What fraction of the 1 000 teenagers would die before their time from diseases caused by smoking? • What percentage would this fraction be? • What fraction of the 1 000 teenagers would be killed as a result of a road accident? • What percentage would this fraction be? • What is the difference between the percentages of deaths from road accidents and diseases caused by smoking? •

Pupils should be taught to:	Year 4	Year 5	Year 6
	<ul style="list-style-type: none"> Every day, 999 people give up smoking. How many people give up in a week? 	<ul style="list-style-type: none"> Every day, 999 people give up smoking. How many people give up in a week?,,,,,,a month?... 1 year? Check by using the inverse operation 	<ul style="list-style-type: none"> Every day, 999 people give up smoking. How many people give up in a week?... a month?... 1 year? If 40 000 extra people gave up on No Smoking Day, how many in total have given up in the year?
Develop calculator skills and use a calculator effectively			<ul style="list-style-type: none"> Check by using the inverse operation
	<ul style="list-style-type: none"> Every cigarette smoked shortens a smoker's life by 5 minutes. If a packet of 20 cigarettes was smoked, by how many minutes would their life expectancy be reduced? 	<ul style="list-style-type: none"> Every cigarette smoked shortens a smoker's life by 5 minutes. If a packet of 20 cigarettes was smoked, by how many minutes and hours would their life expectancy be reduced? 	<ul style="list-style-type: none"> Every cigarette smoked shortens a smoker's life by 5 minutes. If a packet of 20 cigarettes was smoked, by how many minutes and hours would their life expectancy be reduced? If a smoker smoked 20 cigarettes every day for a month, by how many minutes, hours and days would their life expectancy be reduced?
		<ul style="list-style-type: none"> 2/3 of adult smokers say that they want to give up. Out of 60... 600... 6 000 smokers, how many would this be? What percentage would this be? 	<ul style="list-style-type: none"> 2/3 of adult smokers say that they want to give up. Out of 60... 600... 6 000 smokers, how many would this be? What percentage would this be? 33.3% of adult smokers do not wish to give up smoking. What fraction of smokers do wish to give up smoking? Out of 6 million smokers, how many want to give up?

Pupils should be taught to:	Year 4	Year 5	Year 6
		<ul style="list-style-type: none"> The tobacco industry spent £100 million on promoting its products in the UK every year. How much would they spend in 2 years? 	<ul style="list-style-type: none"> The tobacco industry spent £100 million on promoting its products in the UK every year. How much would they spend in 2 years?... a month?... a week?... each day?

Smoking Education Through Numeracy

HANDLING DATA

Pupils should be taught to:	Year 4	Year 5	Year 6
Solve a problem by collecting, organising, representing, extracting and interpreting data in tables, graphs and charts	<p>As outcomes, Year 4 pupils should, for example:</p> <p>Find the answer to a question by collecting data quickly then making a tally chart.</p>	<p>As outcomes, Year 5 pupils should, for example:</p> <p>Test a hypothesis about the frequency of an event by collecting data quickly: for example, from a simple experiment, a local newspaper, a reference book, work in other subjects... Discuss a bar chart or bar line chart showing the frequency of the event and check the prediction.</p>	<p>As outcomes, Year 6 pupils should, for example:</p> <p>Test a hypothesis by drawing and discussing a bar chart where (discrete) data are grouped.</p>
	<p>For example, undertake a survey on reasons why people start smoking (see example below).</p>	<p>For example, test the hypothesis 'Most people give up smoking in order to save money' (see example below).</p> <p>For example, test the hypothesis 'Most people start smoking because of peer pressure' (see example below).</p>	<p>For example, test the hypothesis 'Most people give up smoking in order to save money' (see example below).</p> <p>For example, test the hypothesis 'Most people start smoking because of peer pressure' (see example below).</p> <p>For example, test the hypothesis 'More than two-thirds of smokers say that they would like to give up' (see example below).</p>

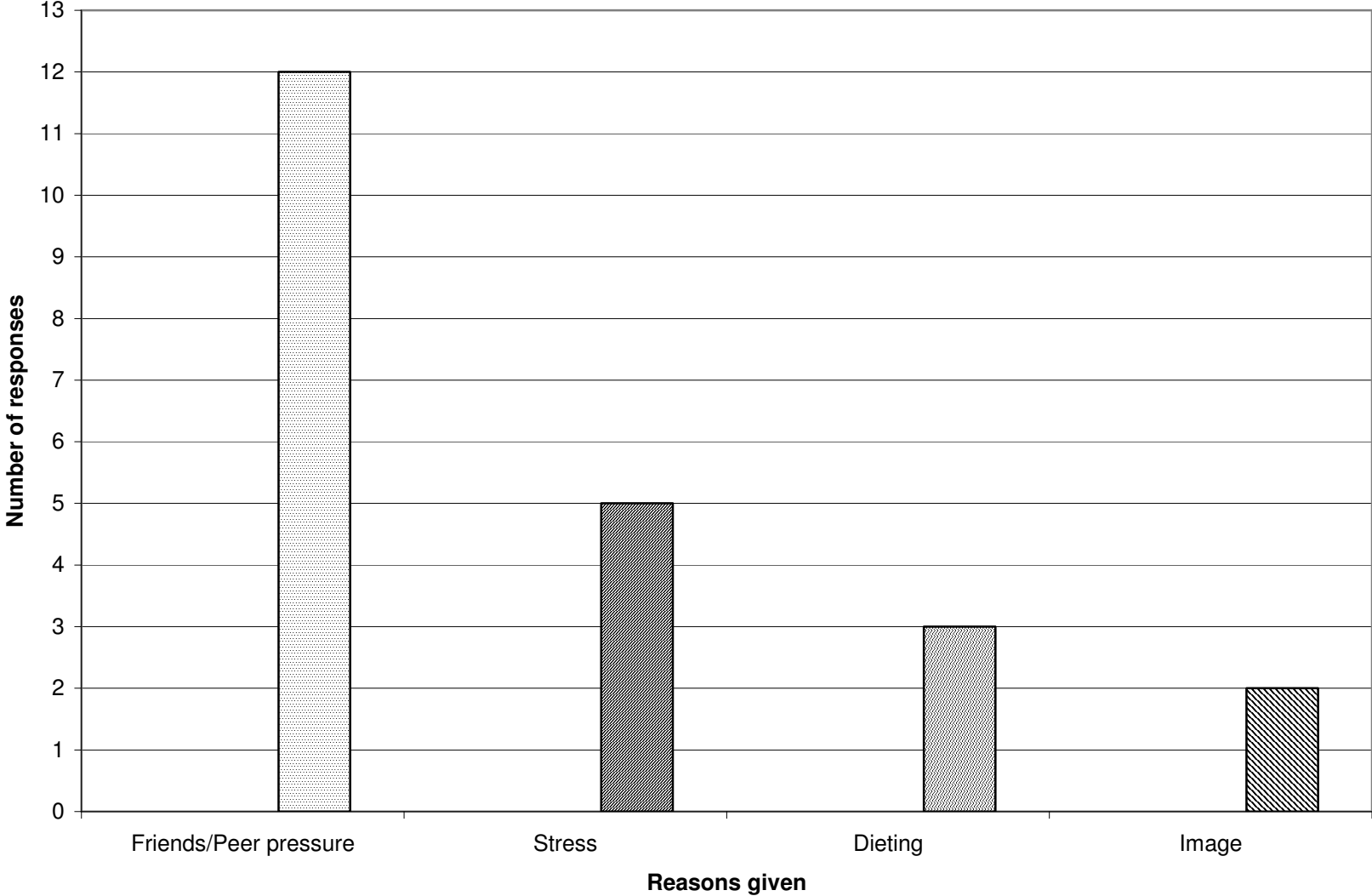
Reasons for Starting to Smoke

This graph shows the responses given for starting to smoke by a group of people who were trying to give up.

Use the results displayed in the graph to help you to answer these questions.

- 1/. Which reason had the least responses?
- 2/. What was the reason given by 3 people for having started to smoke?
- 3/. How many people in total responded to the survey?
- 4/. How many people said they had started to smoke because of pressure from friends?
- 5/. How many more people said that they had started smoking because of their friends, than because of their image?

Reasons for starting to smoke



Reasons Given by Smokers for Wanting to Give Up

The data in this graph shows the reasons smokers gave for wanting to give up smoking. Use the data in the graph to answer these questions.

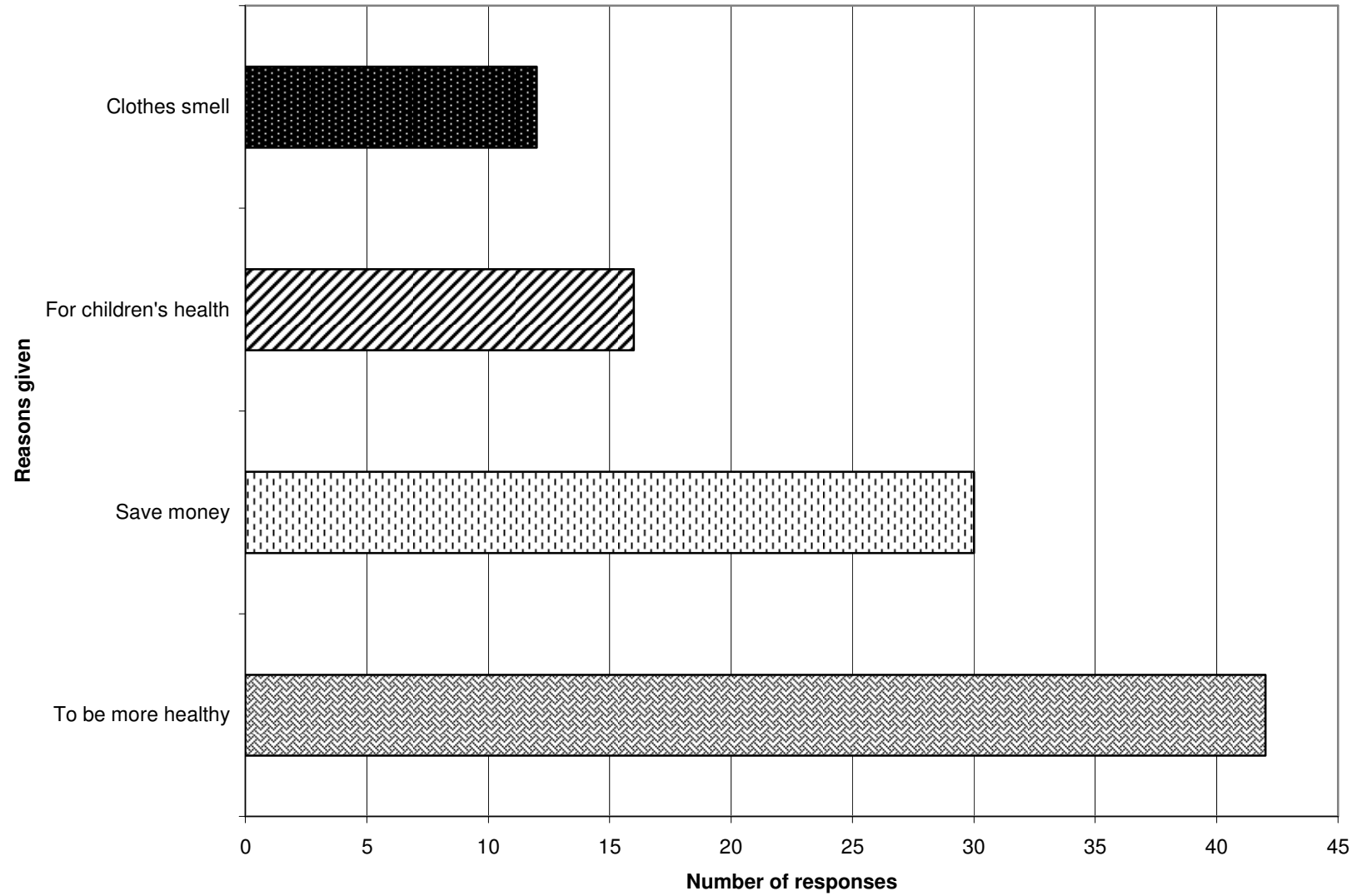
1/. What was the most popular reason given for wanting to give up smoking?

2/. How many respondents said that they wanted to give up to save money?

3/. How many **more** people felt they should give up because of their health, than because of the money it cost?

4/. How many people in total took part in the survey?

Reasons smokers gave for wanting to give up



The Cost Of Smoking

NB: Costs presented are fictitious. Schools may wish to use the most up to date cost which can be found at www.ash.org.uk

The data in the graph shows the approximate cost of smoking 10 cigarettes a day. Use this data to help you to answer these questions.

1/. If a smoker bought 10 cigarettes a day for a year how much would it cost them?

2/. After 10 years, a smoker would have spent £15,000 on cigarettes. Estimate how much they would have spent after:

15 years _____

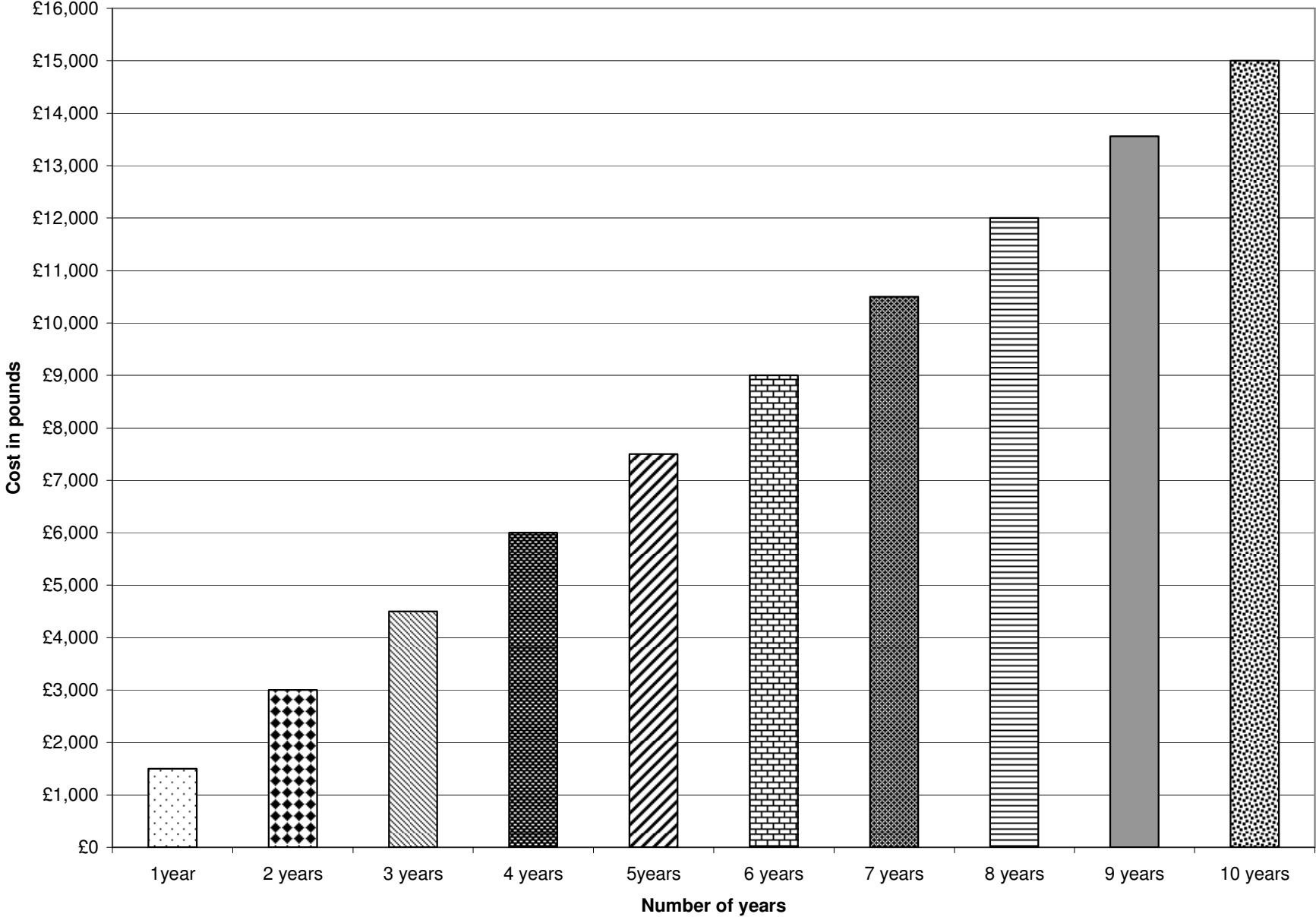
20 years _____

Explain how you worked this out. _____

3/. If a smoker had smoked for 5 years before they gave up smoking, how much would they have spent on cigarettes in that time?

4/. If someone had been successful in giving up smoking, how much could they have saved themselves in 3 years?

Cost of smoking 20 cigarettes a day



Time Taken For Smoke to Travel

This line graph shows the results from an investigation to see how long smoke takes to travel across a room. Use the graph to complete this table.

Distance travelled	1.8m	2m		2.4m	2.6m	
Time in seconds	22	42	60		98	120

1. How long did it take the smoke to travel 2.6m?
2. How far had the smoke travelled in a minute?
3. During which minute did the smoke travel the furthest?
4. Use the graph to estimate how long it would take the smoke to travel 2.1 metres.
5. How far had the smoke travelled after 2 minutes?

Time Taken For Smoke To Travel

