



Which flavour ice-cream is better?

Everybody likes ice-cream. What is your favourite flavour?

This is a story about Pauline, the ice-cream lady. Pauline decided to create a new flavour of ice-cream and she had two choices—either 'Sweet Surprise' or 'Yummy Jumble'. Pauline looked at the ways she might create each of these ice-creams.



Sweet Surprise	Yummy Jumble
The ingredients needed to be transported from a long way away. She would have to use trucks that used a lot of energy and made pollution.	The ingredients could be bought from the local farms so no energy would be wasted and no pollution made. Also, the local farmers would get extra business.
The ingredients needed a forest area to be cut down to get to them.	The ingredients could come from crops so no forest would have to be cut down.
The recipe was difficult to follow and needed an expert to travel from out of town.	The recipe could be followed by local people who needed a job.
A factory that used lots of power and made pollution would be needed.	A factory that used solar power and made no pollution would be used.
Machines would be needed which used lots of water, which would end up polluted before being emptied back into the river.	Machines that used only recycled water, with nothing dumped into the river, would be used.



If both ice-creams tasted just as good, which flavour of ice-cream would you choose to make? Pauline looked carefully at the two choices. If she chose Sweet Surprise, the environment would suffer with pollution and a loss of forest. If she chose Yummy Jumble, not only would she not harm the environment, she would also create jobs for the local farmers and townspeople.

Pauline chose Yummy Jumble. But that means that no-one will ever taste Sweet Surprise. Do you think she made the right choice? Do you think that people can live without ever tasting Sweet Surprise if it means that the environment is better protected?

cts.

SA

2.7, 2.11,

Alligator swamp

- Colour the questions that have the answer **9** to find a path through the swamp.

start

12% of 75 $\frac{1}{3}$ of 27 75% of 12

$\frac{7}{8}$ of 16 30% of 30 $\frac{1}{3}$ of 99 10% of 400

$\frac{3}{7}$ of 21 25% of 26 8% of 4 70% of 40

25% of 36 10% of 200 150% of 6 60% of 15

$\frac{4}{5}$ of 55 1% of 900 $\frac{1}{8}$ of 64 45% of 20

$\frac{1}{2}$ of 18 10% of 90 $\frac{7}{8}$ of 56 $\frac{1}{9}$ of 81

30% of 36 $\frac{1}{4}$ of 24 $\frac{1}{6}$ of 54

$\frac{1}{12}$ of 108 $\frac{3}{5}$ of 15 60% of 8

90% of 10 $\frac{1}{8}$ of 63 $\frac{5}{8}$ of 32 $\frac{4}{8}$ of 24

$\frac{1}{7}$ of 63 20% of 45 100% of 9 $\frac{3}{8}$ of 24

$\frac{45}{100}$ of 20

finish

Teachers' note The children could use this sheet with a calculator to practise finding percentages and fractions of numbers. These can be described in real situations involving money, for example, 'What is 12% of £75?'

Developing Numeracy
Solving Problems Year 6
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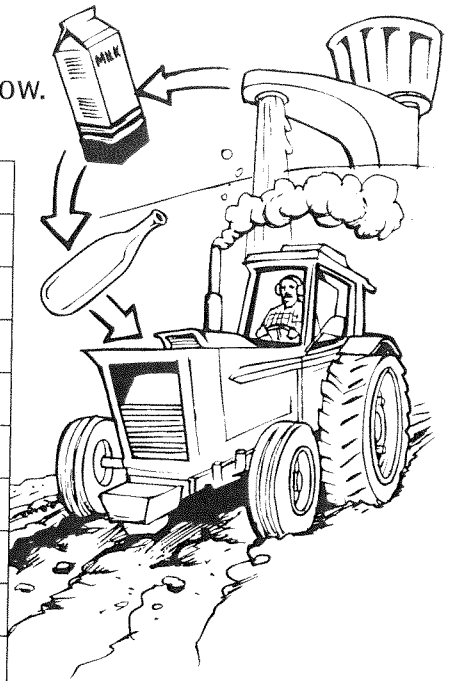


Which flavour ice-cream is better?

1. Complete these activities.

(a) Find each word in the 'new word' list in the puzzle below.

New words	E	N	V	I	R	O	N	M	E	N	T
ingredients	F	P	A	G	E	B	E	A	H	C	R
transport	A	O	K	X	C	A	N	C	L	R	A
business	C	L	P	T	Y	N	E	H	S	Z	N
energy	T	L	U	B	C	Q	R	I	D	G	S
pollution	O	U	O	V	L	U	G	N	W	E	P
environment	R	T	F	J	E	C	Y	E	H	M	O
factory	Y	I	B	U	S	I	N	E	S	S	R
solar	S	O	L	A	R	E	Y	F	I	D	T
machine	I	N	G	R	E	D	I	E	N	T	S
recycle											



(b) Use the words from the 'new words' list to complete this passage.

When people make new things, they often need to use _____¹
 in a _____². These machines sometimes use lots of
 _____³ and create _____⁴ which damages
 the _____⁵. To help keep our environment clean, they could
 use _____⁶ energy and _____⁷ some of the
 materials that are causing pollution.

2. Answer these questions.

(a) Why did Pauline choose to make Yummy Jumble ice-cream?

(b) Why will no-one ever taste Sweet Surprise?

(c) Which flavour ice-cream would you have made?

Why?

Eating machine

This chart shows the number of grams of food that Shane ate during one week.



1. Fill in the total number of grams for each day.

	Breakfast	Lunch	Evening meal	Total
Monday	320 g	527 g	578 g	1425 g
Tuesday	310 g	550 g	502 g	
Wednesday	322 g	490 g	600 g	
Thursday	330 g	515 g	595 g	
Friday	312 g	480 g	605 g	
Saturday	500 g	345 g	515 g	
Sunday	370 g	460 g	480 g	

2. How many grams did Shane eat in the whole week? _____

3. Estimate how many grams Shane might eat in four weeks. _____

Use the number of grams I eat in one week.

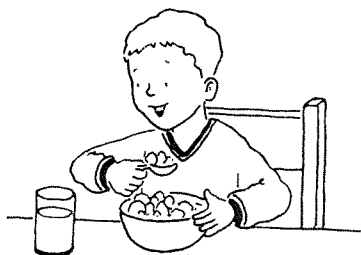


4. Estimate how many grams Shane might eat in one year. Round the number to the nearest 100. _____

5. What is the average (mean) number of grams Shane eats for breakfast? _____

lunch? _____

evening meal? _____



• Estimate how many grams of food a person might eat in a lifetime. Use the rounded number in question 4.

Teachers' note Encourage the children to give thought to the difference in amounts of food eaten by children and adults. An adult might eat twice as much as Shane. How many years are you a child? How many years an adult? What is an average lifetime? The children could use calculators if desired.

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Taking a risk means to do something that may or may not have a positive outcome. People take risks every day. Most of these are small risks that neither cause us harm nor put us in a difficult situation. However, some risks can have a major influence on our lives.



Before taking any risk, it is important to consider the likely outcomes.

1 Consider a likely positive and a likely negative outcome for each of these risks.

Risk	Positive outcome	Negative outcome	Would I take the risk?
<i>You consider answering a question in class. You are almost sure you know the correct answer.</i>			
<i>You are new to a school. You consider walking up to a group of students to introduce yourself.</i>			
<i>Your drama teacher asks you to take the main part in a play. You feel nervous, but you love drama and want to be an actor.</i>			

2 Describe a time when you took a risk that had a positive outcome. List your feelings before and after you took the risk.

Feelings before	Risk and outcome	Feelings after
	<hr/> <hr/> <hr/> <hr/>	

3 Sometimes it is unwise to take a risk because it is almost certain it will have negative consequences for you or someone else. Give an example of a risk you wouldn't consider taking for this reason.

Peer pressure means allowing people your own age (often your friends) to influence your thoughts and actions. People often give in to peer pressure because they want to avoid being teased by others or want to feel like they are part of a group. Peer pressure is a problem if you feel like you are doing something you really don't want to do.

1 Imagine three younger children tell you the following stories about peer pressure. What would be your advice to each person?

Stacey and Kiera say I can only be their friend if I wear the same sort of clothes as them. I want to stay friends with them, but I don't want to be told what to wear.

What should I do?

Advice:

My friends are encouraging me to come to drama lessons with them. They say they have lots of fun. Mum says I can go if I want to. I'm not sure about it. I always feel shy starting something new.

What should I do?

Advice:

The group I hang around with bully a younger student. They push him over and take his lunch. They say I have to start doing it too or they will spread untrue rumours about me. I don't want to bully anyone.

What should I do?

Advice:

2 Find a partner. Discuss your answers. Decide on the best answer to each scenario and report back to the class.

3 Describe a time when you or a friend have faced peer pressure. Give your opinion on what happened.



Name: _____

Character cards

- Think of a name for each of these characters and write it in the box.
- Choose two contrasting characters and write a detailed character sketch for each.

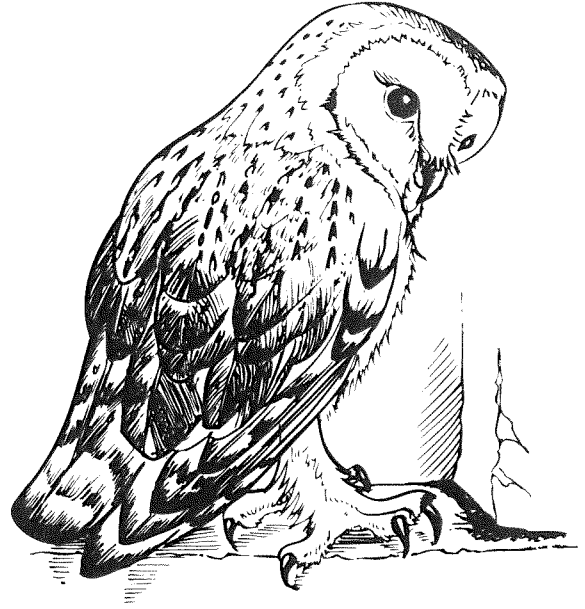
Dear Helper,

Objective: to plan the characters in a story.

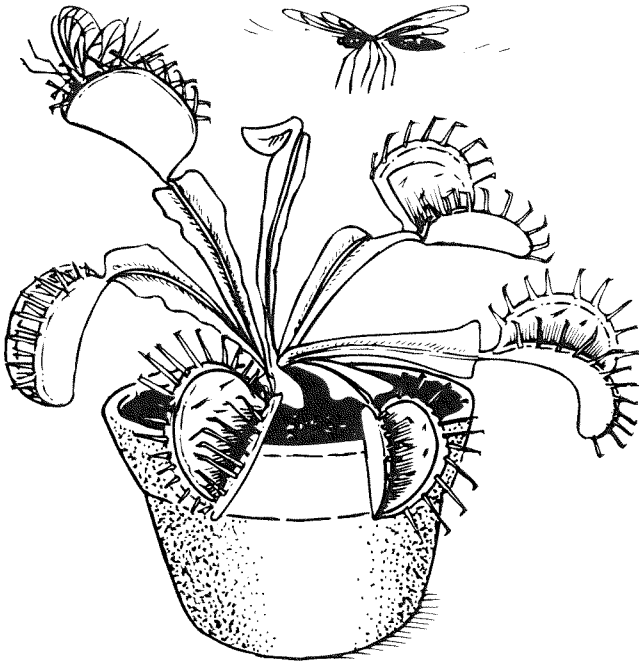
Having an idea of how characters might behave and talk, as well as how they look, is an important part of story writing. Support your child by asking questions – for example: *What colour is the character's hair? Is the character kind or cruel? Do they talk in posh or colloquial language?*

Adaptations for survival

Barn owls are hunters of the night. Even if you have never seen one, it's possible you have heard its eerie screech. Barn owls often nest in old buildings and barns. They have wide downy wings, which give them a silent flight. They spot prey using their big eyes, which are very sensitive even in dim light. They have powerful legs and sharp talons for seizing mice and voles, and a hooked beak helps them to tear at the flesh of animals, although as adults they often swallow their prey whole.



- Using this information, give a reason for each of the owl's adaptations.



The Venus fly-trap grows in marshy soils (bogs) that contain little nitrate. Nitrate is an important ingredient in fertilisers, and without it plants have difficulty making proteins. To gain extra nutrients, the Venus fly-trap uses its leaves as clever traps. The hinged, open leaves are covered in hairs that are sensitive to touch. When a small bug crosses the leaf it springs a trap. The overlapping spines on the edge of the leaf trap the victim and the leaf produces chemicals that digest the body, providing the

plant with all the protein it needs. Other leaves on the plant make sugars, and the roots anchor the plant to the soil, helping it to take up water.

- Explain how a Venus fly-trap is adapted to life in a marshy soil.

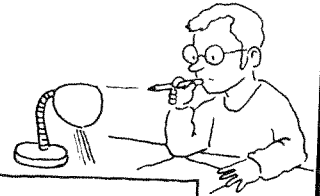
Dear Helper,

We have been looking at how living things adapt to where they live (their habitat). Help your child to read through these two descriptions and pick out the special features which help each survive in its habitat.

Writer's block

An author is writing a **48-page** book.

- Complete the chart to show how long it takes.



Day	Number of pages written today	Total number of pages written so far	Fraction of book written so far
Monday	1	1	$\frac{1}{48}$
Tuesday	1	2	
Wednesday	1	3	$\frac{1}{16}$
Thursday	1	4	
Friday	2		$\frac{1}{8}$
Saturday	2	8	
Sunday	4	12	$\frac{1}{4}$
Monday	4		
Tuesday	8	24	
Wednesday	12		$\frac{3}{4}$
Thursday	12	48	1

- Another author is writing a **36-page** book. Fill in the chart.

Day	Number of pages written today	Total number of pages written so far	Fraction of book written so far
Monday	2	2	$\frac{1}{18}$
Tuesday	1		
Wednesday	1		
Thursday	2		
Friday	3		
Saturday	9		
Sunday		36	1



An author has to write a **24-page** book in five days.

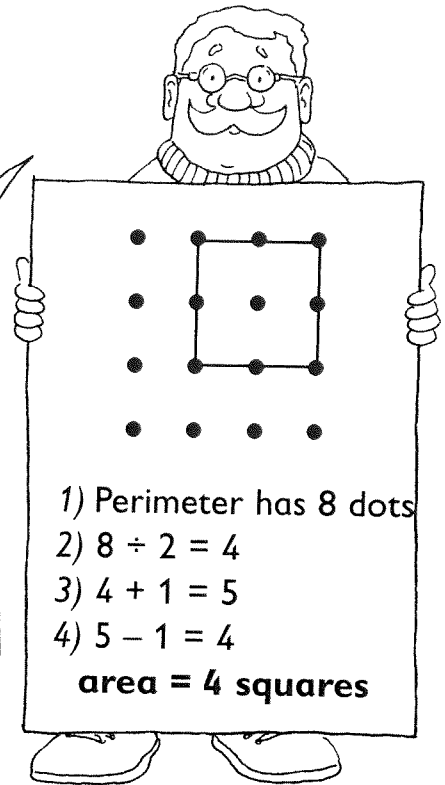
- Draw a chart to show how she could do this.

Teachers' note Revise fractions during the oral/mental starter. The numbers in the chart can be masked before photocopying, and others inserted, to create a flexible resource.

Pick's theorem

A man called Mr Pick noticed something about finding the area of a shape on a dotted grid.

- Read what he says.



- 1) I count the number of dots on the perimeter.
 - 2) I divide this number by 2.
 - 3) Then I add the number of dots inside the shape.
 - 4) Finally, I take away 1.
- The answer is always the same as the area of the shape.

- Draw shapes on the grids. Follow Mr Pick's instructions to test whether his idea always works.

Teachers' note Provide copies of page 38 for children who require additional grids for this activity. Encourage the children to record carefully. Ask questions such as, 'Does this work for all rectangles? What about all triangles?' 'How do you find the area of other quadrilaterals?' To check their answers, the children may have to break up the shape into smaller shapes.