Reasoning in the classroom

Pizza man

Support materials for teachers

Year 3

Llywodraeth Cymru
Welsh Government

Year 3 Reasoning in the classroom – Pizza man

These Year 3 activities offer opportunities for learners to use a range of numerical skills within the context of buying and making pizza.

Activity 1

Pizza man

Learners find the total cost of buying pizza for a family.

Includes:

- Pizza man question
- Markscheme

Activity 2

Fussy friends

They use multilink cubes to explore simple fractions.

Includes:

- Explain and question – instructions for teachers
- Whiteboard – Fussy friends
- Resource sheet – Pizza order

Reasoning skills required

Identify	Communicate	Review
Learners use their numerical understanding to solve simple problems.	They explain their methods, both orally and in writing.	They check that their solutions are feasible.

Procedural skills

- **Money (£)**
- **Fractions**

Numerical language

- **Equal share**
- **Half**
- **Quarter**
- **Three-quarters**
- **One-third**
- **Two-thirds**
- **Whole**

Activity 1

Pizza man

Activity 1 – Pizza man

or

Outline

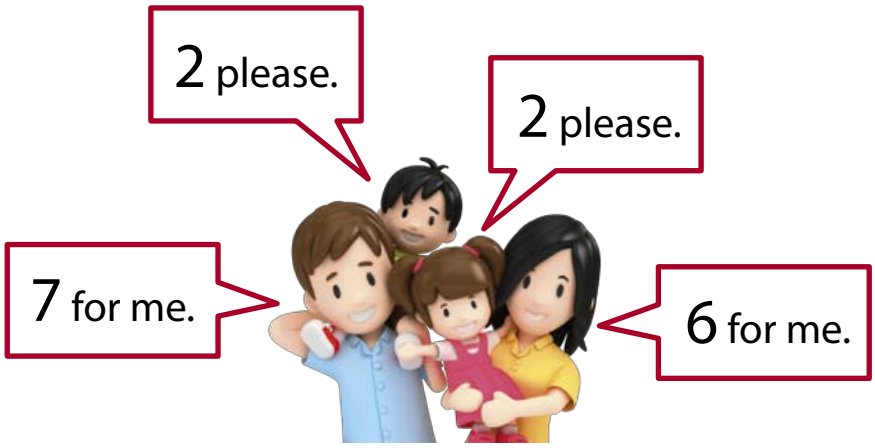
This activity is focused on the real-life context of working out the total cost of pizza for a family.

You will need

Pizza man question
One page for each learner

Markscheme

How many slices of my cheese pizzas would you like?



You can buy whole pizzas or slices.

There are **8 slices** in a whole pizza. It costs **£5**

1 slice costs **£1**

How much does the family pay?

£

3m

M

Activity 1 – Pizza man – Markscheme

Marks	Answer
3m	**£11**
Or 2m	Shows understanding that 2 whole pizzas and 1 additional slice should be ordered, e.g. • 6 + 2 make a whole one and then you can put another slice with the 7 to make a whole one and then you need 1 more • 17 = 8 + 8 + 1
Or 1m	Shows understanding that 17 slices are needed, e.g. • 17 seen • Answer of £17 Or Shows or implies the intent to group into 8's, even if there are numerical errors

◀ **8 slices in one pizza**

Activity 1 – Pizza man – Exemplars

Daddy and little boy = 8 so that is £5 and mummy and girl = 8 so that is £5 to but little boy needs a peace so that it £1 and that is £11

£

Correct; **3 marks**

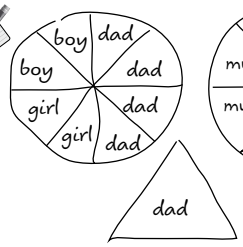
- This learner explains their method, grouping the number of slices required. The answer is clearly shown in the working.

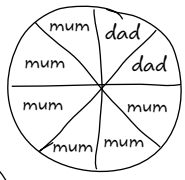
Well what I did was I did 7 + 2 = 9 + 2 = 11 + 6 = 17 and then I worked out that was £11

£ 11

Correct; **3 marks**

- Although clear understanding is shown, the communication is less effective than in the previous exemplar. Learners commonly use = to mean 'makes' rather than 'is the same as'; this causes difficulties later on in mathematics so should be avoided wherever possible.





£

2 whole pizzas and 1 additional slice; **2 marks**

- The use of diagrams shows numerical insight but this learner has forgotten to engage with the costs.

I added them in my head and it was 16 pieces

£ 10

Groups of 8 implied; **1 mark**

- 16 pieces linked to £10 implies that groups of 8 have been considered, but this learner would benefit from support to improve their numerical communication.

They need to get 17

£ 17

Shows 17; **1 mark**

Common error

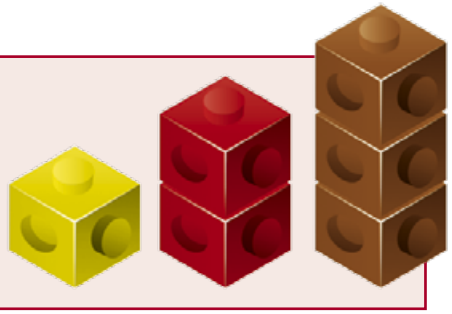
This learner has not engaged with the fact that there are 8 slices in a pizza.

Activity 2

Fussy friends

Activity 2 – Fussy friends

Outline



Using multilink cubes to represent ingredients, learners 'prepare' pizzas.

This activity encourages learners to explore simple fractions in relation to both number and shape.

You will need

Large circular card ('pizza' base),
with lines indicating four quarters
One card for each pair

Multilink cubes
Each pair needs 6 red, 12 yellow and 9 brown cubes

WB

Whiteboard – Fussy friends

R

Resource sheet – Pizza order
One for each pair (sheets need to be cut in half before the activity)

Activity 2 – Fussy friends

Explain

Give each pair a pizza base (large circle of card with lines showing quarters) and a set of multilink cubes (6 red, 12 yellow and 9 brown) and explain the representations:

Red → tomato Yellow → cheese Brown → slice of sausage

Now show **Fussy friends** on the whiteboard and explain that four friends are going to share a pizza. But they are very fussy, so they all want different things.

The four friends want:

- equal shares of the pizza
- to use all the ingredients (so all the cubes must be used)
- to share each ingredient fairly (so the cheese, for example, must be shared equally between the three friends that want it).

Ask learners to 'make' the pizza, placing cubes to show who gets what on each of the four slices. They should then discuss what fraction of the tomato, cheese and sausage each learner gets. Finally, ask them to compare their answers with another group before engaging in a whole-class discussion. *(Nia and Rees each have $\frac{1}{3}$ of the tomatoes and $\frac{1}{3}$ of the cheese. Joe has $\frac{1}{3}$ of the tomatoes and all the sausage. Lily has $\frac{1}{3}$ of the cheese.)*

Learners then create pizzas to order.

Each pair completes a **Pizza order** for a pizza to be shared by four people, defining what each person wants, and then checks that their order is possible. They then swap orders with another pair, making the pizza and checking each other's work.

(Note that not all the cubes can be shared equally between two, three and also four friends. Make sure that the learners understand that in real life slices of sausage, for example, can be cut, but for this activity all the cubes must be used whole.)

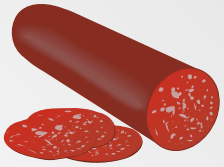
Question

- There are 9 sausage cubes. Why can't you share 9 cubes equally between two people? In real life, if you had 9 slices of sausage to share between two friends, how much would each person have?
- How many friends can share equally the 9 sausage cubes? *(One, three or nine)*
- Which ingredient will share equally between one, two, three and also four friends? *(Cheese, because there are 12 cubes.)*
- How many friends can share the 6 tomato cubes? *(One, two, three or six)* Why can't you share them between four friends? In real life, if you had 6 tomatoes to share between four friends, how much would each one have?

Extension

- Change the number of people sharing the pizza, hence changing the fractions the learners are working with.

Fussy friends

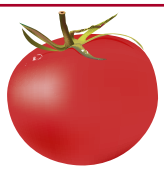
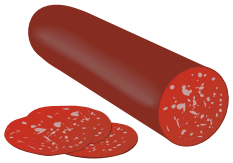
			
Nia wants	✓	✓	**Yuck!**
Joe wants	✓	**Yuck!**	✓
Lily wants	**Yuck!**	✓	**Yuck!**
Rees wants	✓	✓	**Yuck!**

Use all the ingredients.

Make it fair!

Pizza order

One pizza to share

Pizza order

One pizza to share