

Stomps party



Support materials for teachers

Year 5



**Llywodraeth Cymru
Welsh Government**

Year 5 Reasoning in the classroom – Stomps party

These Year 5 activities are focused on the costs of a birthday party. The first activity was included in the 2015 National Numeracy Tests (Reasoning). This is followed by one further activity.

Activity 1

Stomps party

Learners work out the maximum number of people who can attend a party given a fixed budget.

Includes:

- Stomps party question
- Markscheme

Activity 2

Buy or make?

Learners explore the relative costs of buying food from a party venue and making it themselves.

Includes:

- Explain and question – instructions for teachers
- Whiteboard – Decisions
- Whiteboard – Stomps' party food
- Teachers' sheet – Prices



Reasoning skills required

Identify

Learners decide for themselves how to approach the problem using knowledge and practical experience to inform estimations and calculations.

Communicate

They devise and refine personal methods of recording information and present their work to other learners.

Review

They interpret answers within the context of the problem and reflect on their assumptions and conclusions; they review each other's work.

Procedural skills

- Estimation/addition of money
- Division
- Realise that budgeting is important

Numerical language

- Greatest
- Compare (costs)
- Cost

Activity 1

Stomps party

Activity 1 – Stomps party



Outline

This Year 5 activity requires learners to decide the maximum number of people that can attend a birthday party and receive party food, a party bag and a balloon, given a defined budget.



You will need



Stomps party question
One page for each learner




Markscheme

Joe is planning his birthday party.
It will be at STOMPS.

STOMPS

Food £6.99 each	Party bags £1.20 each	Balloons 75p each
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Please can each person have food, a party bag and a balloon?

Yes, but the most we can spend is **£100**

What is the greatest number of people that can go to STOMPS?
Show how you know.



people

Activity 1 – Stomps party – Markscheme

Marks	Answer
4m	<p>11 people, with one or more of the following key values shown in the working: A value between 11.1 and 11.2 inclusive (or shows $100 \div 8.94$ or $10000 \div 894$)</p> <p>98.34 (or 9834) 107.28 (or 10728)</p>
Or 3m	<p>11 people, with 8.94 (or 894) shown</p> <p>Or</p> <p>Shows any of the key values, even if the number of people is incorrect or omitted</p>
Or 2m	<p>11 people, but without a key value or 8.94 shown</p> <p>Or</p> <p>Attempts to find the number of 8.94's in 100, even if there are errors</p> <p>Or</p> <p>The only error is the cost per person, e.g.</p> <ul style="list-style-type: none"> $6.99 + 1.20 = 8.19$ (balloon omitted) $\times 13 = \text{£}106.47$ which is too much, so 12 people can go
Or 1m	<p>Shows 8.94 (or 894)</p> <p>Or</p> <p>Their cost per person is incorrect but there is an attempt to find the number in 100, even if there are errors</p>

◀ Accept 11 people clearly implied, e.g.

- Joe, his mum and 9 friends

◀ **£8.94 is the cost per person.**

Throughout, accept it rounded to £9

◀ **£98.34 = total cost, 11 people**

£107.28 = total cost, 12 people

◀ **Accept repeated addition or subtraction**

◀ **Throughout, do not accept the conceptual error of adding pence to £, e.g.**

- $6.99 + 1.20 + 75 = 83.19$

so just one person can go

Activity 1 – Stomps party – Exemplars

<p> $£6.99 + £1.20 = £8.19$ $£8.19 + 75p = £8.94$ $100 \div 9 = 11$ </p> <p style="text-align: right;">11 people</p>	<p>Correct; 4 marks</p> <ul style="list-style-type: none"> This learner has realised that £8.94 can usefully be rounded to £9. The answer 11 is shown with the key calculation $100 \div 9$ (equivalent to $100 \div 8.94$). 				
<p> <i>what I done was I did add up £6.99 and £1.20 and 75p on my calculator and that was £8.94 so I worked out the answer that way. So he can have 10 friends.</i> </p> <p style="text-align: right;">10 people</p>	<p>11 people with 8.94 shown; 3 marks</p> <ul style="list-style-type: none"> Although the answer is 10, '10 friends' clearly implies Joe + 10 so is acceptable. Had this learner shown how the answer 11 was reached, e.g. $100 \div 8.94$, they would have gained all 4 marks. 				
<p> 2 £17.88 4 £35.76 8 £71.52 12 71.52 + 35.76 = 107.28 </p> <p style="text-align: right;">12 people</p>	<p>Shows the key value 107.28; 3 marks</p> <ul style="list-style-type: none"> This learner shows a lack of confidence with multiplication. However, the key value of 107.28 indicates a correct method. 				
<p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> $\begin{array}{r} 6.99 \\ 1.20 \\ 0.75 \\ \hline 8.94 \end{array}$ </td> <td style="width: 50%; vertical-align: top;"> $\begin{array}{r} \text{PM } 10) 26.82 \\ \underline{\text{PM } 2) 26.82} \\ 53.64 \\ \underline{ 11} \\ 0 \end{array}$ </td> </tr> <tr> <td style="vertical-align: top;"> $\begin{array}{r} \text{PM } 1) 8.94 \\ \text{PM } 2) 8.94 \\ \text{PM } 3) 8.94 \\ \hline 26.82 \\ \underline{ 2} \\ 0 \end{array}$ </td> <td style="vertical-align: top;"> $\begin{array}{r} \text{PM } 10) 70.46 \\ \text{PM } 12) 24.82 \\ \hline 95.28 \\ \underline{ 11} \\ 0 \end{array}$ </td> </tr> </table> </p> <p style="text-align: right;">18? people</p>	$\begin{array}{r} 6.99 \\ 1.20 \\ 0.75 \\ \hline 8.94 \end{array}$	$\begin{array}{r} \text{PM } 10) 26.82 \\ \underline{\text{PM } 2) 26.82} \\ 53.64 \\ \underline{ 11} \\ 0 \end{array}$	$\begin{array}{r} \text{PM } 1) 8.94 \\ \text{PM } 2) 8.94 \\ \text{PM } 3) 8.94 \\ \hline 26.82 \\ \underline{ 2} \\ 0 \end{array}$	$\begin{array}{r} \text{PM } 10) 70.46 \\ \text{PM } 12) 24.82 \\ \hline 95.28 \\ \underline{ 11} \\ 0 \end{array}$	<p>Attempts to find the number of 8.94's in 100; 2 marks</p> <ul style="list-style-type: none"> 8.94 is shown, then this learner shows a clear intent to find the number of them in 100, even though there are errors.
$\begin{array}{r} 6.99 \\ 1.20 \\ 0.75 \\ \hline 8.94 \end{array}$	$\begin{array}{r} \text{PM } 10) 26.82 \\ \underline{\text{PM } 2) 26.82} \\ 53.64 \\ \underline{ 11} \\ 0 \end{array}$				
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<p> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> $\begin{array}{r} 6.99 \\ 1.20 \\ 0.75 \\ \hline 8.15 \end{array}$ </td> <td style="width: 50%; vertical-align: top;"> $100 \div 8.15$ </td> </tr> </table> </p> <p style="text-align: right;">12 people</p>	$\begin{array}{r} 6.99 \\ 1.20 \\ 0.75 \\ \hline 8.15 \end{array}$	$100 \div 8.15$	<p>The only error is the cost per person; 2 marks</p> <ul style="list-style-type: none"> Although a calculator is available, this learner adds the three costs incorrectly. However, everything else is correct, including rounding down to find their number of people. 		
$\begin{array}{r} 6.99 \\ 1.20 \\ 0.75 \\ \hline 8.15 \end{array}$	$100 \div 8.15$				
<p> <i>I did put 100 in my calculator then I did do ÷ then I did do 6 point 99 then I did do = and that is how I got my answer</i> </p> <p style="text-align: right;">14.3 people</p>	<p>$100 \div$ their incorrect cost per person; 1 mark</p> <ul style="list-style-type: none"> This learner forgets that each person should also have a party bag and a balloon. The method to find the number in 100 is correct, but the answer is not rounded down to the nearest person. 				
<p> <i>Only Joe becoss it costs 83.19</i> </p> <p style="text-align: right;">people</p>	<p>Incorrect; 0 marks</p> <p>Common error This learner has added £75 rather than 75p for their cost of balloons.</p>				

Activity 2

Buy or make?

Activity 2 – Buy or make?



Outline

This Year 5 activity focuses on the real-life issue of budgeting and comparing costs when providing food for a party. Learners explore whether it is cheaper to make the food or buy it ready-made from a party venue, then consider other factors that might come into play in making the decision on what to do.

Buy or make? encourages learners to make their own decisions on how to go about the task and how to present their findings to other groups.



You will need



Whiteboard – Decisions



Whiteboard – Stomps' party food



Teachers' sheet – Prices (optional)

Activity 2 – Buy or make?



Explain

Remind learners that in **Activity 1 – Stomps party**, Joe wanted to go to Stomps for his birthday party. Food at Stomps costs £6.99 per person and he and his mum could afford for 11 people to go, so the total cost of food would be around £77. They now want to decide whether to buy the food from Stomps, or whether to make their own instead. The task is to help them decide.

Show **Decisions** on the whiteboard and ask why they might consider making their own food. (*Cost, taste, nutrition, ability to make different food, etc. At this stage, do not direct learners into discussing reasons why they might choose to buy Stomps' food, as that forms part of their reflection at the end of the activity.*) Summarise their responses on the whiteboard and make sure the issue of cost is raised.

Split learners into pairs/small groups. Show **Stomps' party food** which details the food that Stomps provides for £6.99. Their task is to find out what the cost of the food would be if Joe and his mum make it themselves. Explain that at the end of the activity they are going to present their work and conclusions to other pairs/groups, so they need to decide how to record what they are doing. As far as possible allow them to make their own decisions on how to get started and what considerations they need to make. If possible, give them a web link to a local supermarket, where they can find prices. Alternatively, before you run the activity, create a price sheet using the teachers' sheet **Prices** as a guide, and give learners a copy.

As much as possible, do not pre-empt important questions, such as how many slices of bread are in one loaf. Instead provide answers to pairs/groups as they ask the questions. (*As a guide, one large loaf contains around 18 slices without the end crusts.*) Support learners throughout the activity, using the questions below. Once all pairs/small groups have completed the task, bring them together to present their work which could be peer 'marked' in terms of clarity, thoroughness, etc. Explore different approaches and conclusions. To complete the activity ask why, if it is cheaper for Joe and his mum to make the food, they still might choose to buy from Stomps (*lack of time, a treat for Joe, etc.*), or, if they have decided it is more expensive, why they still might prefer to make their own (*healthier, etc.*).



Question

- How many slices of bread do you need? Will you be able to buy that exact number? Why/why not? (*If 11 people go to the party, you might want 22 slices of bread, but a loaf has 18 slices.*) What does that mean in terms of what you have to buy? (*You are likely to have to buy more than you need – but that means you have extra ingredients for use at another time.*)
- Do all shops charge the same price for a loaf of bread? Why/why not? (*Different makes, different quality bread, special offers, etc.*) So why choose one loaf over another?
- Why might prices be higher at Stomps? (*They have to pay for the cost of making the food, etc., and make a profit.*)
- How are you going to show your work so others can understand what you have done and why you made the decisions you did?

Why might we make our own food, Mum?



Because...

Stomps party food

£6.99 for each person



Each person gets:

- 1 round of cheese sandwiches
- 1 packet of crisps
- 1 chocolate bar
- 1 apple
- 1 carton of juice



Remember! 11
people altogether



Prices

Create a price sheet something like this.

Insert prices that are appropriate for your locality.

Large loaf of sliced bread	
Butter	
Cheese	
Crisps – pack of six	
Chocolate bars	
Apples – bag of five	
Juice – pack of six cartons	