Word problems

16-8=

8-16=

Crystal has £16 but she owes Billy £8. How much will she have after paying him back?

16+8=

86+47=

47-86=

There are 86 children in the playground. 47 are girls. How many are boys?

86-47=

Which calculation do you need?

Word problems

Two activities here: first set developed by Alison Symonds at Bedford Ethnic Minority Support Service and the second by Graham Smith from the EAL Academy inspired by the first.

Last updated 11th February 2016

Webaddress for this activity
http://www.collaborativelearning.org/wordproblems.pdf

Our activities are designed to:
...build on prior knowledge.
...move from concrete to abstract.
...ensure everyone works with everyone else.
...extend social language into curriculum language.
...provide motivating ways to go over the same topic more than once.

COLLABORATIVE LEARNING PROJECT
Project Director: Stuart Scott
We support a network of teaching professionals to develop and disseminate accessible talk-for-learning activities in all subject areas and for all ages.
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Website: http://www.collaborativelearning.org

BRIEF SUMMARY OF BASIC PRINCIPLES BEHIND OUR TEACHING ACTIVITIES:

The project is a teacher network, and a non-profit making educational trust. Our main aim is to develop and disseminate classroom tested examples of effective group strategies that promote talk across all phases and subjects. We hope they will inspire you to develop and use similar strategies in other topics and curriculum areas. We want to encourage you to change them and adapt them to your classroom and students. We run teacher workshops and conferences worldwide but mainly in the UK. The project posts online many activities in all subject areas. An online newsletter is also updated regularly.

*These activities are influenced by current thinking about the role of language in learning. They are designed to help children learn through talk and active learning in small groups. They work best in non selective classes where children in need of language or learning support are integrated. They are well suited for the development of speaking and listening. They provide teachers ideal opportunities for assessment of spoken language.

*They provide scaffolding for differentiation by placing a high value on what children can offer to each other on a particular topic, and also give children the chance to respect each other's views and formulate shared opinions which they can disseminate to peers. By helping them to take ideas and abstract concepts, discuss, paraphrase and move them about physically, they help to develop thinking skills. We strongly endorse the principles of the Learning Without Limits group to which we belong.

*They give children the opportunity to participate in their own words and language in their own time without pressure. Many activities can be tried out in pupils' first languages and afterwards in English. A growing number of activities are available in more than one language, not translated, but mixed, so that you may need more than one language to complete the activity.

*They encourage study skills in context, and should therefore be used with a range of appropriate information books which are preferably within reach in the classroom.

*They are generally work effectively over a wide age range because children can bring their own knowledge to an activity and refer to books at an appropriate level. The activities work like catalysts.

*All project activities were planned and developed by teachers working together, and the main reason they are disseminated is to encourage teachers to work with each other inside and outside the classroom. They have made it possible for mainstream and language and learning support teachers to share an equal role in curriculum delivery. They should be adapted to local conditions. In order to help us keep pace with curriculum changes, please send any new or revised activities back to the project, so that we can add them to our lists of materials.

Word problems

Word problems- which operation?

Aims:

- Know what calculation is needed to solve word problems
- Use language of justification
- Work collaboratively

Activity in pairs (after pairing activity)

1. One partner takes and reads out loud a word problem.
2. The other partner finds the calculation that will solve it and says "I think it's ..... because....."
3. If the first partner disagrees they can say, "I disagree because..."
4. After agreeing, put the problem and calculation into the solution grid.
5. Begin again with the other person starting first.

Explain activity.

Ask pairs to explain to each other what they have to do.
Ask a pupil to explain to the class what they have to do.
Display this poster.

Word problems

There are 86 children in the playground. 47 are girls. How many are boys?	86-47=	86+47=	47-86=
Zak has 32 songs on his ipod. He downloads 7. How many songs has he got on his ipod now?	32-7=	32+7=	7-32=
Jacob's team won 12 matches last month and 9 matches this month. How many matches have they won?	12+9=	12-9=	9-12=
Molly is 9. How old will she be in 11 years?	9+11=	11-9=	9-11=
Mohammed's team have won 26 matches. How many more will they have to win to win 40 matches?	26+40=	40-26=	26-40=
Crystal has £16 but she owes Billy £8. How much will she have after paying him back?	16+8=	16-8=	8-16=

Word Problems - Instructions

Work in pairs. You have six word problem cards and eighteen calculation cards.
Take turns to pick a problem and read it out to your partner.
Your partner should look for the calculation card that will solve the problem and read it out.
If you both agree, place it on the solutions grid next to the problem. If your partner disagrees they should say why and then you should work together to find the correct calculation card.

Word problems

Karol has 5 fewer biscuits than Sofia. Sofia has 13 biscuits. How many biscuits has Karol?	13-5=	13+5=	5-13=
What temperature is 5 degrees higher than 13 degrees Celsius?	13-5=	13+5=	5-13=
There are 86 children in the playground. 47 are girls. How many are boys?	86-47=	86+47=	47-86=
Zak has 32 songs on his ipod. He downloads 7. How many songs has he got on his ipod now?	32-7=	32+7=	7-32=
Jacob's team won 12 matches last month and 9 matches this month. How many matches have they won?	12+9=	12-9=	9-12=
Molly is 9. How old will she be in 11 years?	9+11=	11-9=	9-11=

Word Problems - Instructions

Work in pairs. You have six word problem cards and eighteen calculation cards.
Take turns to pick a problem and read it out to your partner.
Your partner should look for the calculation card that will solve the problem and read it out.
If you both agree, place it on the solutions grid next to the problem. If your partner disagrees they should say why and then you should work together to find the correct calculation card.

Solution Grid

Karol has 5 fewer biscuits than Sofia. Sofia has 13 biscuits. How many biscuits has Karol?	
What temperature is 5 degrees higher than 13 degrees Celsius?	
There are 86 children in the playground. 47 are girls. How many are boys?	
Zak has 32 songs on his ipod. He downloads 7. How many songs has he got on his ipod now?	
Jacob's team won 12 matches last month and 9 matches this month. How many matches have they won?	
Molly is 9. How old will she be in 11 years?	
Mohammed's team have won 26 matches. How many more will they have to win to win 40 matches?	
Crystal has £16 but she owes Billy £8. How much will she have after paying him back?	

Word problems- which operation?

Aims

- Know what calculation is needed to solve word problems.
- Use language of justification.
- Focus on key words in questions.
- Work collaboratively.

Preparation

- Print the word problems sheet, blow up to A3, copy enough for pair work onto card and cut up.
- Make one copy of solutions grid for each pair.

Activity in pairs

1. Sort pupils into pairs.
2. Pairs find three possible solutions from the cards for each word problem on the solution grid.
3. Partner A reads aloud the first word problem.
4. Partner B finds the calculation that will solve it and says "I think it's ... because..."
5. If partner A disagrees, s/he can say, "I disagree because..."
6. After agreeing, they write the calculation and solution into the solution grid.
7. Partner B reads aloud the second word problem…

Possible reflections on language

- Ask pairs to identify the key word in problems 5-8 (each) and how it often (but not always – see problem 4) signals the need for division.
- Ask pairs to identify the keywords in problems 1-4 (in total & altogether) which often signals the need for multiplication.
- Ask half the pairs to write a multiplication problem and the other half to write a division word problem. Swap the problems over for solution.

Word problems

1. Mike eats 4 cheeseburgers everyday for 14 days. How many cheese burgers does he eat in total?	14x4=	14+4=	14÷4=
2. Robert drinks a 50 cl bottle of water at school every day. How many cl of mineral water does he drink at school altogether in a week?	32-7=	32+7=	7-32=
3. Abdul has 5 uncles and each one gives him £10 for his birthday. How much money does he get in total?	50x5=	50+5=	50-5=
4. Rakhia sent a video message to each of her 4 cousins. A video message costs £1.50. How much did her video messages cost altogether?	4x1.5=	4+1.5=	4÷1.5=
5. Emily eats 14 pieces of fruit in 7 days. How many does she eat each day?	14+7=	14x7=	14-7=
6. Marek has sold 9 bars of chocolate to his friends and now has £18. How much did each bar of chocolate cost?	18+9=	18÷9=	18x9=
7. Anna spends £15 a week on travel to work, but only works for 3 days a week. How much money does it cost her to get to work each day?	15+3=	15÷3=	15x3=
8. Ludmilla and her 2 sisters visited family in Slovakia last Summer. The flights cost £360. How much does each ticket cost?	360÷3=	360x3=	360+3=

Solution Grid

1. Mike eats 4 cheeseburgers everyday for 14 days. How many cheese burgers does he eat in total?	
2. Robert drinks a 50 cl bottle of water at school every day. How many cl of mineral water does he drink at school altogether in a week?	
3. Abdul has 5 uncles and each one gives him £10 for his birthday. How much money does he get in total?	
4. Rakhia sent a video message to each of her 4 cousins. A video message costs £1.50. How much did her video messages cost altogether?	
5. Emily eats 14 pieces of fruit in 7 days. How many does she eat each day?	
6. Marek has sold 9 bars of chocolate to his friends and now has £18. How much did each bar of chocolate cost?	
7. Anna spends £15 a week on travel to work, but only works for 3 days a week. How much money does it cost her to get to work each day?	
8. Ludmilla and her 2 sisters visited family in Slovakia last Summer. The flights cost £360. How much does each ticket cost?	