

# Self-differentiating, Self-marking Homework!

Ever wished you could have a *magic homework sheet* that would give each pupil just the right amount of challenge, give instant feedback and mark itself? Well here it is! Read on to see how it works...

## What you need

- Internet access for all at home (or an arrangement where some complete 'homework' in school.)
- Maths Investigations golden key for your school, or individual login for each pupil.
- Pupils trained in how to use the Maths Investigations online Skill Checks.
- One of the homework sheets from the web site at [www.mathsinvestigations.com/homework](http://www.mathsinvestigations.com/homework).

## Instructions

Hand out a copy of the homework sheet and explain to the pupils that they are going to *make up their own questions* for homework. The first one on the sheet is done for them. They are going to make up more like this. For each one they should:

- **Make** up the question.
- **Check** it using the appropriate online Skill Check at [www.mathsinvestigations.com](http://www.mathsinvestigations.com).
- **Mark** it on the sheet. (Put a tick or cross using a coloured pen.)
- Then make up the **next** one.

Show them the place on the sheet where it explains how to find their activity. Eg

**Learning Ladder → Step 2 → Add and Subtract → Add a Single Digit →** 

Demonstrate on the interactive board how to access the activity and use it, and impress on the pupils the following key principles:

- **If it is too easy, make it (a little) harder:** if they *get one right* they should make the next one *a little more difficult.*)
- **If it is too hard, make it easier:** if they *get one wrong* they should try to work out their mistake and do it again. Then make up an *easier* question for the next one. (Have the chat about mistakes being important: value your mistakes and don't try to change them: it is when we make a mistake that we can learn etc)
- **MARK EACH QUESTION** before you do the next one. (If some forget to do this the first time, just reinforce it before the next homework. Good habits can take a while to form! )

Agree with the pupils what variety you will allow in their questions. For example, if you are practising the skill of 'Adding Multiples of Ten' then you might agree that all their 'action numbers' (the number you are adding)

should be either 10, 20,30, 40, 50, 60, 70, 80 or 90. This gives clear parameters for the exercise. The children are then free to vary their starting numbers. Some, who need a lot of support might work only on sums like  $3 + 40 = 34$ . Others might be working on ones like  $47 + 30 = 77$ . Others might venture into three or four-digit starting numbers (eg  $345 + 60 = 405$ ) etc.

You may wish to specify that half of the questions should be missing number questions. In this case (as in the example sheets given), the pupils will need to draw a box for each answer, so that you can see clearly what their question was before they put the answer in.

Depending on the level that your pupils are working at, there may not be room for all the questions on the front of the sheet. They can continue overleaf.

If your pupils are used to working on squared paper, you may wish, as an alternative, to photocopy squared paper onto the back of the sheet and get them to do all their work on that side only.

If you think that the questions are likely to be ones which the pupils cannot complete mentally, you may wish to show them how to set out their calculation and their working as follows:

Set out your work like this:

$$0.0712 \div 2 = 0.0356$$

← Main Calculation

$$2 \overline{) 712}$$

Working →

That's it! When you collect the homework you will have a whole range of examples that each pupil has created at their own level. You will have really useful evidence of what each pupil can do independently, and no more complaints from parents about homework not being sufficiently challenging! And it should all be marked for you!

You are then free to focus on:

- The pupils who have not followed instructions (eg forgetting to mark)
- Those who have taken the easy option and not challenged themselves.
- Those who have found the topic difficult and may need support.
- Those who might benefit from extension work in class.

Happy pupils, happy teacher!