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| **Dress up game – KS1 maths** |
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| A dress-the-model activity to work out how many combinations of clothes are possible |
| **Subject(s):** Maths**Approx time:** 40 - 60 minutes |  | **Key words / Topics:** * Solve a problem
* Multiplication
* Combinations
* Clothing
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| **Suggested Learning Outcomes**  |  |  |
| * To be able write and calculate statements for multiplication .
* To be able to solve a contextual problem using multiplication
* To understand how to determine a number of wearing combinations possible using a dress-the-model activity
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| **Introduction** |  |  |
| This is one of a set of resources developed to support the teaching of the primary national curriculum. They are designed to support the delivery of key topics within maths and science. This resource focusses on a dress-the-model activity to determine the number of wearing combinations possible with a set number of clothing items. It allows pupils to take a practical approach to applying multiplication. |
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| **Activity** |  | **Teacher notes** |
| **Introduction (5-10 minutes)**Teacher to explain that learners are going to perform an activity to see how many combinations of clothes a dress model can wear. They will be using a dress-the-model activity handout which will be coloured in and then cut out. Teacher to help learner understanding by quick discussion of clothing combinations.Teacher to hand out equipment needed for the task to learners. |  | This activity could be carried out as individuals or in pairs.Print the activity sheet onto thin card and distribute to the learners. Ensure the learners know how many items of clothing there are on the activity sheet i.e. one model on a stand, one stripy and one plain shirt, one pair of stripy and one pair of plain shorts and a warm hat and a summer hat.Learners could be allowed to add design and colour as desired. They should carefully cut the item on the sheet making sure that the tabs are not cut off by mistake.*(continued on next page)* |

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| **Cutting out and dressing the model (25-35 minutes)**Teacher to demonstrate the steps shown in the teacher presentation and listed below.* Step 1 – Handout the dress-the-model activity sheet highlighting the available items of clothing.
* Step 2 – Learners to colour in the dress-the-model sheet and add their own designs to the clothing. They then safely cut out each item on the activity sheet, being careful not to cut off the tabs, and attach the clothes to the model.
* Step 3 – Learners to try different combinations of shirts, shorts and hats to count how many ways they can dress the model.

Learners to complete each step to conduct the activity for themselves. The teacher presentation can be left on the whiteboard as a supporting guide as they do this.**Discussing the results of the activity (10-15 minutes)**Teacher to discuss with learners how they counted the number of ways they could dress the model. Then discuss the use of multiplication to work out the problem. |  | The model could either be used standing or flat on a table, with the clothing placed on. Learners apply the different items of clothing, counting the number of possible combinations.When trying the combinations of clothing on the model the learners could use the tabs, double sided sticky tape or sticky tack to keep the items in place. When they have finished counting the combinations, they may want to use a glue-stick to permanently attach some clothes to the model to keep as a record.Learners could also write down their findings in the form of a table of the possible options. Learners could be shown how to do this using the Dress-the-Model table slide. |
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| **Differentiation** |  |  |
| **Basic** |  | **Extension** |
| Provide pre-cut models and items of clothing.Provide a pro-forma of a table to list the different combinations. |  | Investigate different combinations of clothes. For example, what if there were 3 hats and 3 shirts. Learners could design additional clothing (socks, boots/shoes, skirts, ponchos etc.) for the model, and calculate the new number of combinations. |
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| **Resources** |  | **Required files** icon-docicon-pdficon-ppt |
| * Coloured crayons/pencils
* Sticky tack, double sided sticky tape, glue sticks
* Safety scissors
* Thin card for printing the Dress-the-model activity sheet.
 |  |  Dress up game presentationicon-pdf Dress up game handout  |
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| **Additional websites** |  |  |
| * **Bitesize – Using multiplication to create models:** <https://www.bbc.co.uk/bitesize/clips/z26n34j>
* **NRich Multiplication & Division KS1**: <https://nrich.maths.org/13782>
* **Snappymaths: Multiplication & Division KS1:** <http://www.snappymaths.com/multdiv/multdiv.htm>
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| **Related activities (to build a full lesson)** |  |  |
| **Starters** (Options) * Discuss how maths is used to help solve problems when you have a set number of options and you want to know the combinations.
* Quickly revise simple multiplication problems.
 | **Extension** (Options)* Investigate different combinations of clothes. For example, what if there were 3 hats and 3 shirts.
* Learners could design additional clothing (socks, boots/shoes, skirts, ponchos etc.) for the model, and calculate the new number of combinations.

**Plenary*** Discuss the outcome of the activity and ways to display the results in a table.
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| **The Engineering Context** film |
| * An understanding of combinations is vital to the way engineers work – it helps to make things at the best cost. A bicycle has many parts, so an engineer will work out the best combination of parts to keep the production costs down.
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| **Curriculum links**  |
| **England: National Curriculum**MathsKS1 Year 3 Number – multiplication and division* Write and calculate mathematical statements for multiplication.
* Solve problems … involving multiplication … including … correspondence problems in which n objects are connected to m objects.
 | **Northern Ireland Curriculum**Mathematics and numeracyKS1 Operations and their applications* understand the operations of addition, subtraction, multiplication and division (without remainders) and use them to solve problems.
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| **Scotland: Curriculum for Excellence**Numeracy and mathematics* MNU1-03a
 | **Wales: National Curriculum** MathematicsKS2 Using number skills – calculate using mental and written methods* use mental strategies to multiply and divide 2-digit numbers by a single digit number.
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| **Assessment opportunities** |
| * Informal teacher assessment of response to Q&A.
* Formal teacher assessment using the tables of outcomes, if used.
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