

Talking Points

Introduction

- Tasks are not arranged in any specific order and can be completed at any time to suit, say, curriculum coverage within your class.
- Provide a context for tasks where possible. Some tasks are likely to be more successful when given a purpose, reason or final outcome. Linking to other areas of the curriculum is particularly effective.
- Prior discussion, or in some cases class/group preparation activities, will maximise the potential of the task and enable each child to work independently and to the best of his/her ability.
- Follow-up work will enable the teacher to assess understanding, clarify misconceptions and challenge each child's ability to explain and apply what they have learned. It will also provide children with an opportunity to show-case their learning and ask questions about anything they have not fully understood.
- Checking the children's understanding of all key vocabulary when setting the task will avoid confusion or difficulties when the children are completing the homework independently.
- When introducing the homework it may be appropriate to help children to set out their working page so that they learn how to present their work clearly.
- Providing concrete materials such as coins or counters might support children who would otherwise have difficulty with some tasks.
- Some tasks are more/less challenging than others. It may be necessary to differentiate by offering more support or additional information to some groups of children or by extending with an additional challenge for the more able members of the class.

Talking Points				
T	Thinking about	Introduction and Prior Discussion	Organisation and Follow-up	Vocabulary
1	numerical awareness investigating reasoning odd and even numbers	<ul style="list-style-type: none"> • What is meant by a rule? • How will you set out the table? • How do you know when a number is odd or even? • How will you make sure that you get a balance of odd and even numbers? 	<ul style="list-style-type: none"> • Now try to draw a picture/diagram to prove that your rule works. 	odd even repeat rule
2	investigating numerical relationships comparison calculating	<ul style="list-style-type: none"> • What is meant by 'a difference of 2'? • What do you notice about the numbers you are using? 	<ul style="list-style-type: none"> • Did you find any patterns? • Try to explain the patterns you found and why they work as they do. 	difference consecutive reverse first/last/middle

Mathematics 3 Thinking Tasks: Talking Points



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T	Thinking about	Introduction and Prior Discussion	Organisation and Follow-up	Vocabulary
3	investigating reasoning comparing	<ul style="list-style-type: none"> • What do we mean by 'taking up space'? • Do you think that heavy things will take up more space in the cupboard? • Why is it important that the packages are unopened? • Why would it make a difference if they had been opened? • How will you find out how much each item weighs? • How will you find out how much space they take up? 	<ul style="list-style-type: none"> • Was your prediction right? • What reasons can you give for why you reached your conclusions? • What evidence do you have to support your ideas? 	light heavy space weight order compare
4	investigating estimating calculating	<ul style="list-style-type: none"> • What is the difference between a guess and an estimate? • What is the most accurate way of answering the question? • What is the most practical way of answering the question? 	<ul style="list-style-type: none"> • How close were your guess and your estimate? • Is there any other way that you could estimate the number of noses on the page? 	guess estimate count difference accurate
5	investigating reasoning money calculating	<ul style="list-style-type: none"> • Which coins are you allowed to use? • What do you notice about all the coins being used? • What does this tell us about all the amounts that can be made? 	<ul style="list-style-type: none"> • Which amounts could you not make? • Could you make them if you took two coins away instead of one? 	investigate total subtracting
6	investigating reasoning calculating	<ul style="list-style-type: none"> • What could you use to help you with this task? • How can you make sure that you have found all the possible combinations? 	<ul style="list-style-type: none"> • What patterns did you notice? • What methods did you use to help you with this task? 	total odd number different calculation
7	design creativity number vocabulary	<ul style="list-style-type: none"> • What is meant by a wordsearch? • Where might you find words you can use? • Can you use the definition of the words as clues? 	<ul style="list-style-type: none"> • What did you find difficult? • How did you overcome your problems? 	wordsearch mathematical vertical horizontal diagonal

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8	numerical awareness counting fractions	<ul style="list-style-type: none"> • What sort of objects might you use? • Which small items could you use? • Why is it important to have different amounts of each item? 		fraction
9	numerical awareness calculating reading code solving	<ul style="list-style-type: none"> • Which letters would you include if you wanted a word with the highest value? • Which letters would you include if you wanted a word with the lowest value? 		code total calculate
10	fraction	<ul style="list-style-type: none"> • What could you do to help you to think about the fractions before you colour the beads in? 	<ul style="list-style-type: none"> • What do you notice about the first bead string? • What does the second bead string tell you about the fractions used? • What have you learned from your own bead strings? 	fraction string
11	numerical relationships calculating	<ul style="list-style-type: none"> • What do you know about 24? • What do you know about multiplication and division? • How can you use this information to help you? 	<ul style="list-style-type: none"> • What have you learned about the relationship between multiplication and division? 	multiplying dividing answer target
12	spatial awareness reasoning accurate drawing geometry design	<ul style="list-style-type: none"> • What must you remember when using a ruler? • What could you do to help you to draw square 1? • What do you know about the sides of a square? 	<ul style="list-style-type: none"> • Possible links to art and design. • What patterns did you notice? • If you were to measure the sides of square 2 and square 3 would they be the same length? • What might happen if you carried on drawing smaller squares? 	square middle point measure approximate pattern
13	investigating fair testing rules reasoning measuring timing	<ul style="list-style-type: none"> • Why do you need an adult to help with this task? • How could you time things if you do not have a stop watch? What have you got that you could use? • What is the difference between an estimate and a guess? • How might you set out your work? 	<ul style="list-style-type: none"> • Possible links to writing instructions in English or to practical science investigations of changing states of matter. • Why do you think the task is called 'Time flies'? 	estimate accurate result record results

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14	investigating design spatial awareness measurement capacity comparing	<ul style="list-style-type: none"> • Why are containers made in different shapes, sizes and materials? • How might the shape of liquid containers differ? 	<ul style="list-style-type: none"> • Possible link to DT. • What key points do you need to think about when designing a container for liquid? 	container liquid size order capacity similar
15	investigation problem solving calculation coins	<ul style="list-style-type: none"> • How will you set out your work? • How will you make sure that you find all the possibilities? • Will you start by making the largest total or smallest total? 	<ul style="list-style-type: none"> • Some children will find it helpful to have the actual coins in front of them. • Reminder that bullet 3 asks for the totals that they <i>cannot</i> make. 	add investigate totals < >
16	exploring calculating drawing	<ul style="list-style-type: none"> • What must you remember in setting out your page? • How will you make sure that you do not miss out dominoes? 	<ul style="list-style-type: none"> • If you were using a nine spot set of dominoes then how many dominoes would there be and what would be the highest/lowest scoring domino? 	domino total totalling
17	exploring measuring comparing collecting data	<ul style="list-style-type: none"> • How would you measure your own hand span leaving the ruler on the table? • How would you measure the length of your foot? • How will you set out your results? 	<ul style="list-style-type: none"> • What does the data you have collected tell you? 	measure record hand span compare predict
18	exploring research estimating calculating budgeting	<ul style="list-style-type: none"> • How much do you think your family has to budget for packet lunches each week? • What would you include in your packed lunch? • What would you need to know so that you could find out how much a sandwich costs? 	<ul style="list-style-type: none"> • What would be the total cost of your packed lunch for a whole week? • How much does your family has to budget for packet lunches each week? 	estimate cost till receipt total more/less
19	investigating problem solving reasoning calculating	<ul style="list-style-type: none"> • Which balloons could Alayna have to celebrate her 11th, 12th, 13th or 15th birthdays? • Why couldn't she use these balloons for her 14th birthday? 	<ul style="list-style-type: none"> • Which strategies did you use to work this out? • Which tables were useful and why? 	altogether record

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20	investigating reasoning spatial awareness creativity and design drawing	<ul style="list-style-type: none"> • How will you set out your work? Which might be the best way to orientate your page? • If you are using the same colours, in what ways will the designs be different? 	<ul style="list-style-type: none"> • Possible links to art or DT. • Children should plan their designs first and then decide which page orientation best suits their work. The grey pages might prove useful for this. • What difficulties did you have? 	strip design pattern symmetrical different
21	investigating decision making reasoning calculation money	<ul style="list-style-type: none"> • What do you know about numbers that might help you? • What do you notice about the prices of the sweets? • How will you set out your answers? 		spend choice
22	investigating reasoning spatial awareness creativity and design drawing	<ul style="list-style-type: none"> • What is meant by the term grid? • In what ways might the patterns be different? 	<ul style="list-style-type: none"> • As the children are required to draw large squares which contain smaller squares the term grid is used here to avoid repetition and confusion with the word square. 	symmetrical grid horizontal vertical reflect different
23	problem solving reasoning numerical awareness	<ul style="list-style-type: none"> • How will you keep track of the clues and record the numbers that are excluded? • When making up your own clues how will you make sure that you do not give the game away too soon? 		digital digit odd even sum multiple < >
24	investigating reasoning spatial awareness creativity and design drawing	<ul style="list-style-type: none"> • What is a hieroglyph? • Where would you expect to find the mirror line and what is its purpose? • What happens to a shape when it is reflected? <p>NB: at least one length of each hieroglyph is 7 mm, the same as the squares on the page</p>	<ul style="list-style-type: none"> • Possible link to history or art. • Children should plan their designs first and then decide which page orientation best suits their work. The grey pages might prove useful for this. • What did you need to think about when drawing the reflection? 	hieroglyph repetition symmetry mirror line repeating pattern reflect left/right

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25	problem solving reasoning numerical awareness ordering calculating	<ul style="list-style-type: none"> • What maths skills are you going to need to use? • What happens to a digit when you change its position? 	<ul style="list-style-type: none"> • More appropriate for use later on in the year. • Which digits should you select to be able to make exactly 100? 	total 2-digit re-order sum
26	investigating reasoning spatial awareness area creativity and design drawing	<ul style="list-style-type: none"> • <u>Key ideas:</u> <ul style="list-style-type: none"> - triangles must be right-angled; - triangles must touch; - triangles must be flat; - triangles may not overlap; - triangles may be rotated and/or flipped. 	<ul style="list-style-type: none"> • Possible link to work on 2-D shapes or area. 	identical edge different
27	investigating reasoning numerical awareness calculating	<ul style="list-style-type: none"> • <u>Key ideas:</u> <ul style="list-style-type: none"> - all 15 coins must be used up; - each box will hold a different amount.; - combinations of boxes make different totals. 	<ul style="list-style-type: none"> • FYI: the solution is 1p, 2p, 4p, 8p 	combination sum of money
28	investigating reasoning numerical awareness calculating	<ul style="list-style-type: none"> • What do you notice about the numbers you are using? • What do you know about odd/even numbers? 	<ul style="list-style-type: none"> • Is it possible to make an even number using any nine balls from the bowl? Why? 	odd total combination
29	spatial awareness reasoning position and direction creativity and design drawing	<ul style="list-style-type: none"> • What is meant by the term grid? • Why should the island almost fill the grid? • What is another way of describing a 90o turn? • How will you decide where to put each of the places on the map? 	<ul style="list-style-type: none"> • Possible link to geography or map work. • Appropriate for use at the end of the year. • Two coloured, facing writing pages will be needed for this task. Children should plan their designs first and then decide which page orientation best suits their work. The grey pages might prove useful for this. 	grid map instructions route forward turn
30	enquiry reasoning data collection, recording and analysing	<ul style="list-style-type: none"> • What is meant by a hypothesis? • What information will you need? • Who might you ask when you carry out your survey? • What do you think will be the result of your survey? 	<ul style="list-style-type: none"> • Did anything surprise you? • What might you change if you repeated this task? 	hypothesis pictogram bar chart