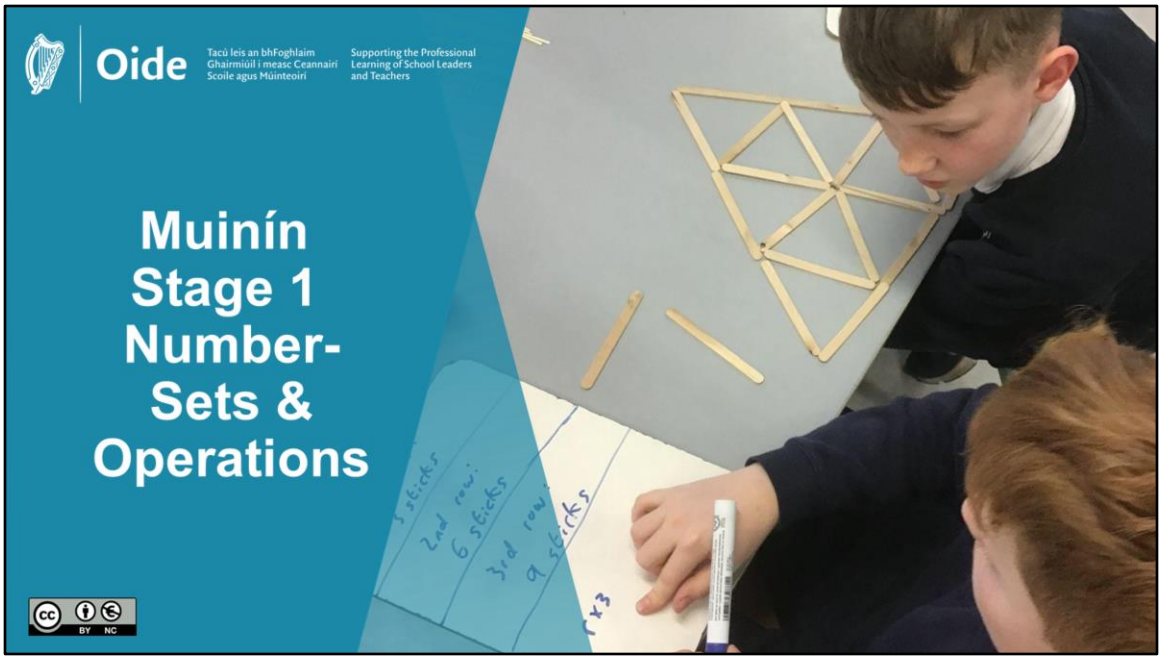
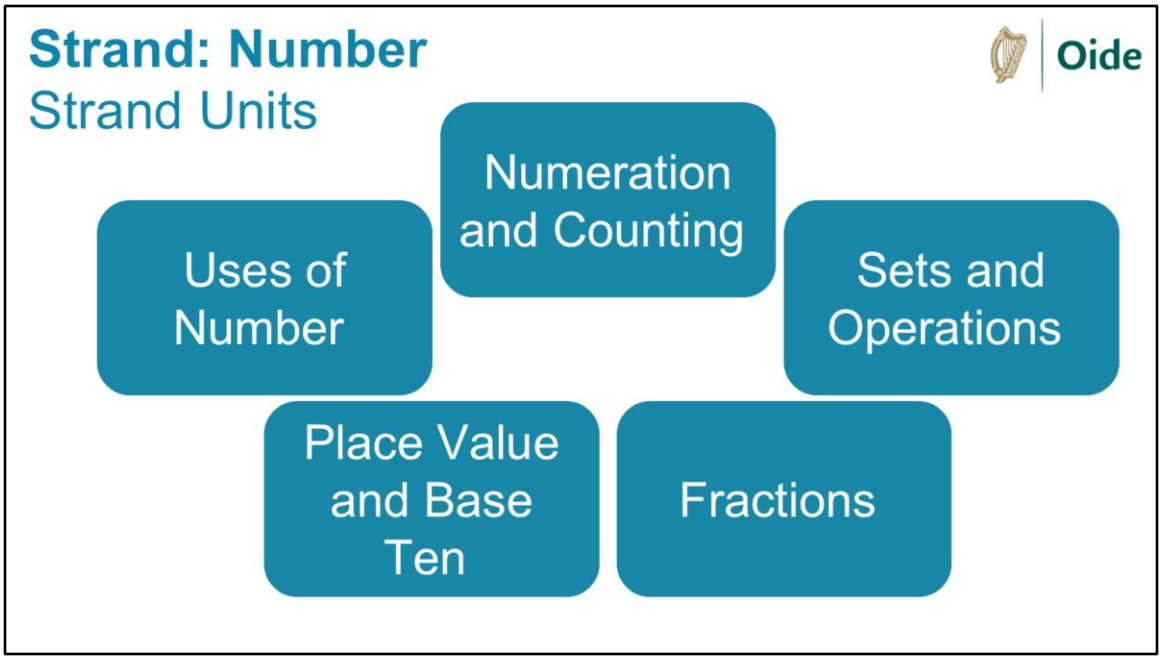


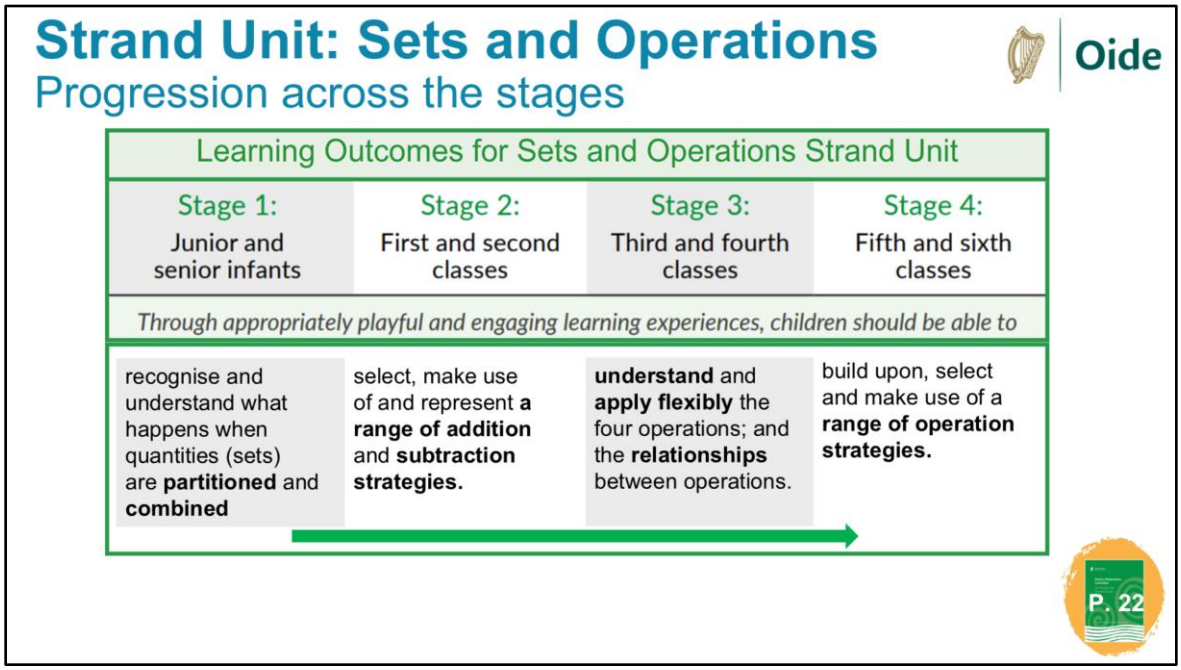
Purpose of slide:
Introductory slide for presentation of Stage 1 Number- Sets and Operations.



Purpose of slide:
To provide teachers with an overview of the Number Strand.

Notes for teachers:

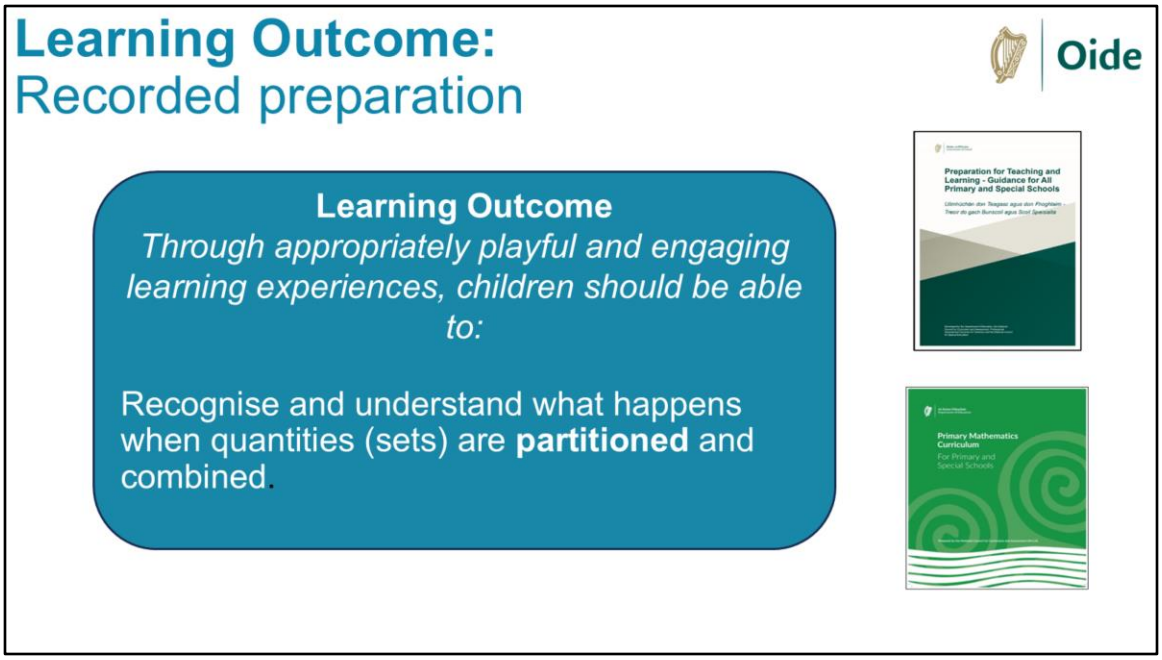
- Go to page 22 of the primary mathematics curriculum.
- There are 5 strand units within the strand of Number in the primary mathematics curriculum. There are uses of number, numeration and counting, place value and base ten, sets and operations and fractions.
- Notice:
    - uses of number is in stage 1 only.
    - numeration and counting is stage 1 and 2 only.
    - place value and base ten, sets and operations and fractions are there for all stages.



Purpose of slide:
To explore the progression across the stages in the strand unit Sets and Operations

Notes for teachers:

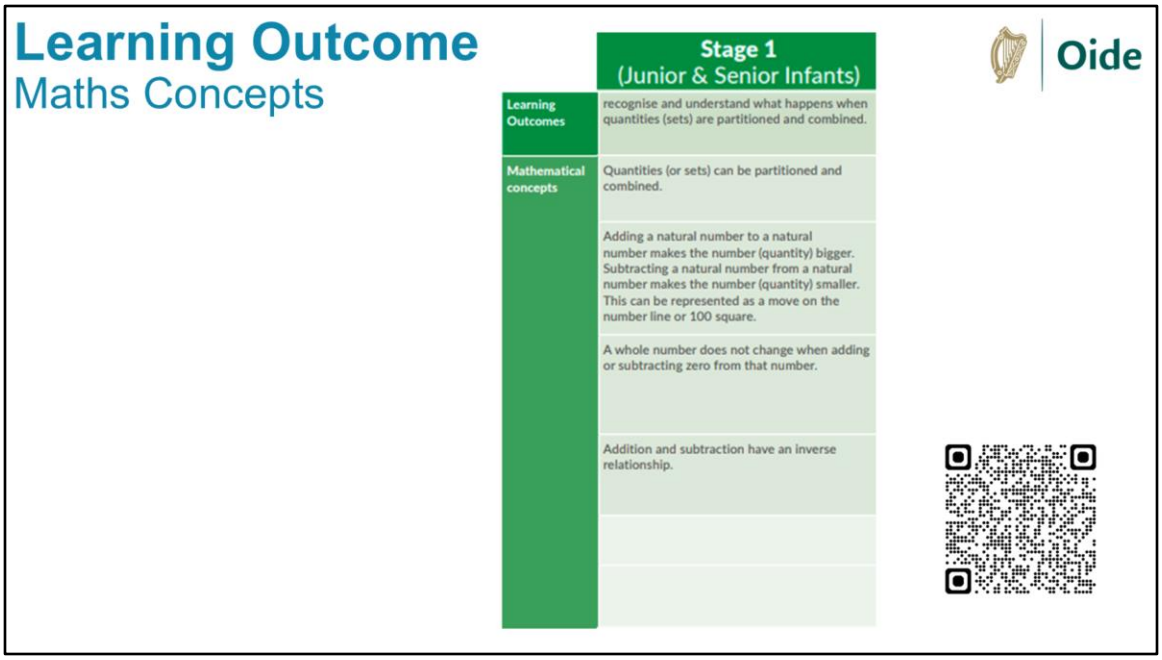
- Notice the progression along the stages.
- Note how language, knowledge and skills are developed from stages 1 to 4.
- Knowledge of progression is necessary so that we can adapt and extend our teaching based on the knowledge we have of the children in front of us.
- Looking at the learning outcomes we can see how each stage builds upon the last, fostering a rich understanding of sets and operations and its mathematical significance.
- The TIMSS 2019 report highlights that a pupil's ability to perform well in number-related tasks often correlates with their understanding of sets and operations, as these foundational concepts are essential for grasping more complex mathematical ideas.



Purpose of slide:
To highlight the learning outcome as the starting point for preparation.

Notes for teachers:

- This is the learning outcome for Number - Stage 1 Strand Unit -Sets and Operations (p.22 PMC)
- Learning outcomes are broad in nature. When working with learning outcomes it is useful to break down the learning outcome into areas of focus.
- For this presentation we will focus on partitioning and we will see how combining naturally links.
- Note: Partitioning is breaking a number into two or more smaller numbers. Combining is putting two or more numbers together to make a larger number.
- Partitioning and combining are the foundation of addition and subtraction.



Purpose of slide:
To highlight the Maths concepts for Stage 1 Number- Sets and Operations

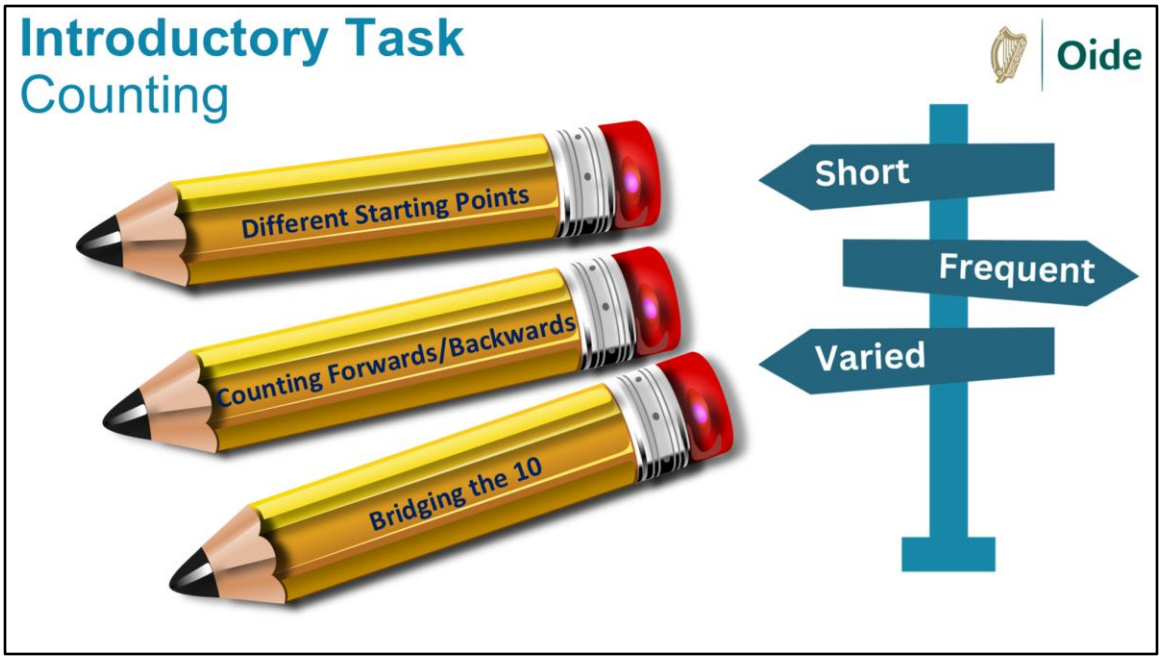
Notes for teachers:

- The maths concepts are the key mathematical ideas that underpin each learning outcome.
- Maths concepts may be useful as an entry point/ reference when preparing for teaching and learning.
- Go to the NCCA Maths Toolkit via this link: https://www.curriculumonline.ie/primary/curriculum-areas/mathematics/toolkit/ or via the QR code to look at the Maths Concepts for Number – Sets & Operations.

Purpose of slide:
To engage in an ‘Odd One Out’ activity.

Notes for teachers:

- Ask the children:
  - Which one do you think is the odd one out? Give me a reason.
  - Try to give me another reason why a particular one might be odd one out.
  - Who had a different answer?
  - Can you think of a reason why each one might be the odd one out?
- This is an example of a low threshold, high ceiling task that is inclusive.
- It provides a great opportunity for Maths Talk.
- Further examples of ‘Odd One Out’ activities may be found on www.pmc.oide.ie in the section - Support Materials for Schools (Micro Maths).



Purpose of slide:

To highlight counting as the first step in mental calculations.

To demonstrate some counting activities.

Notes for teachers:

- Counting is the foundation of the development of number sense. It is the first step in mental calculation.
- It is important to develop pupils' flexibility with counting. All pupils will benefit greatly from simple counting activities. Many children who struggle with Maths don't have a full grasp of number sequences and can gain in confidence from daily or regular number work. The three key pillars include:
    - Different starting points
    - Counting forwards and backwards (more robust understanding of number relationships needed) Number before and after included in this.

        - Bridging 5s and 10s

- As students come to know the basic facts in any operation, they progress through three phases (Baroody, 2006)
    1. Counting.
    2. Deriving (reasoning strategies on known facts).
    3. Mastery (efficiently produces answers).
- Children cannot move on to more complex phases unless they are able to count.
- A counting session should have:
    - A lively pace.
    - Enthusiastic participation.
    - 2 or 3 short focused activities.
    - Physical activity.
    - Choral response.
    - Individual response.
- Sample counting activities:
    - Counting choir – start with choral counting, move onto parts of the choir.
    - Count around.
    - Bridging unusual ranges of numbers (forwards 6 - 12 and backwards 13 – 5).
    - Counting Can (1s, 2s etc..).
    - Counting stick - https://mathsbot.com/manipulatives/countingStick or https://bossmaths.com/countingstick/ or Amplify Polypad - Use number line for skip counting.
- As well as counting, another important aspect is learning about numerals - identify, recognise, sequence, order, locate and write numerals.
- Learning experiences that help to develop counting numerals can be found here Counting Stage 1 and 2 https://pmc.oide.ie/resources/supportmaterialsforschools/
- Counting is for all stages – should be done daily.

Counting Stick

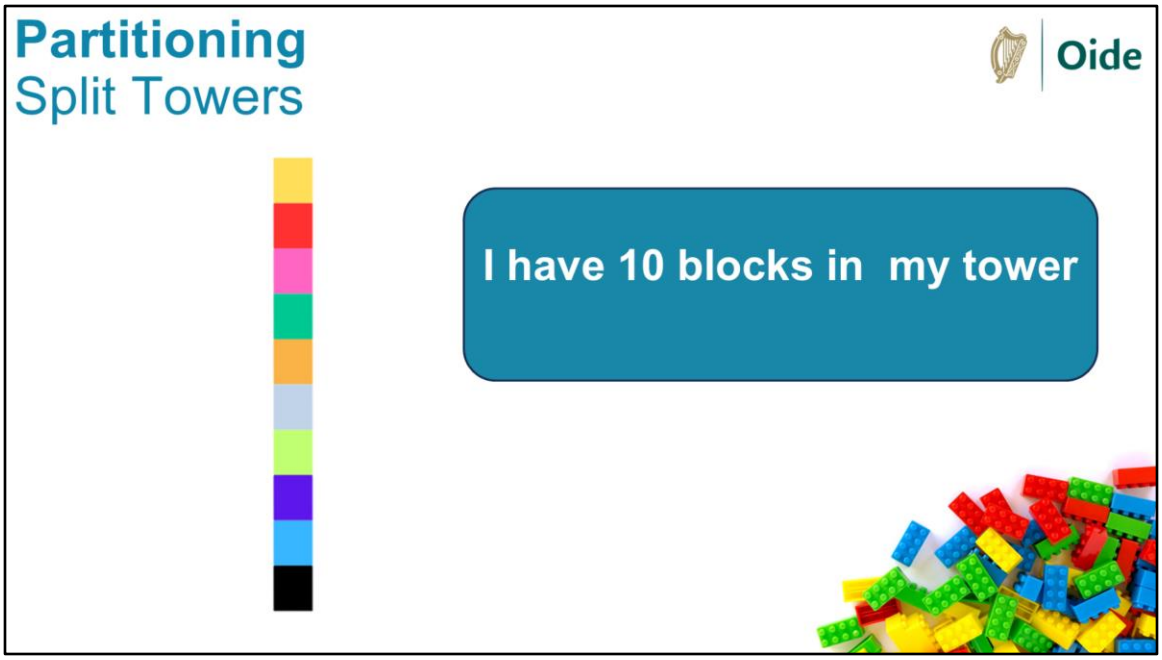
Oide

https://mathsbot.com/manipulatives/countingStick

Purpose of slide:
To introduce the digital counting stick on the maths bot website.

Notes for teachers:

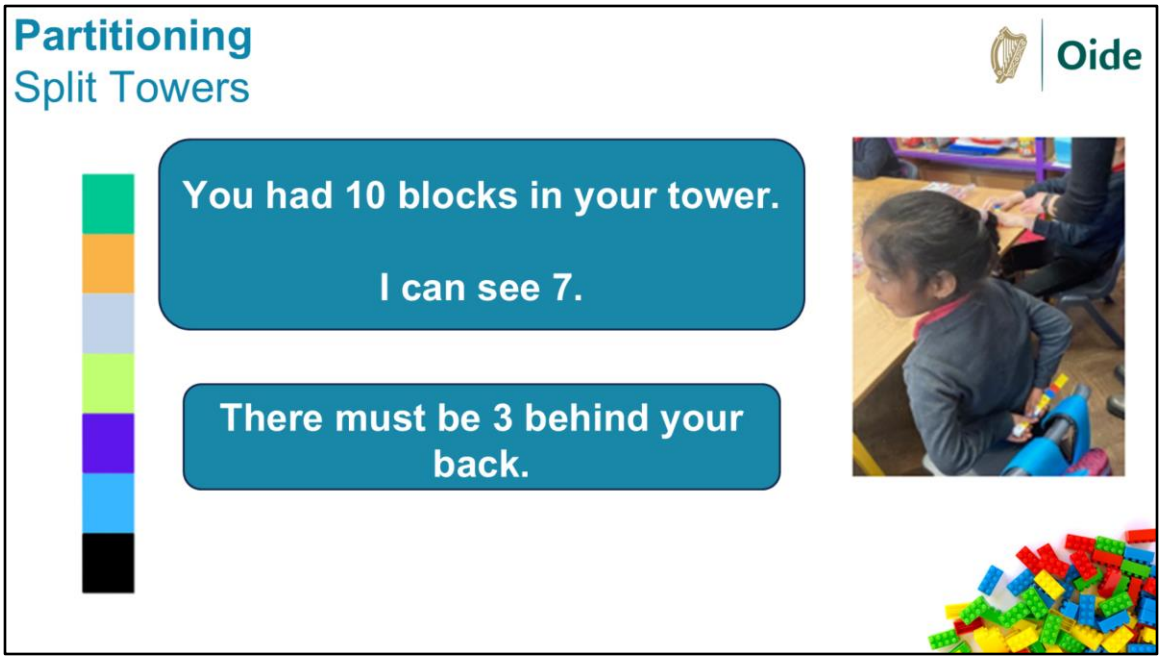
- Count in 1's and 2's.
- Could also use for patterns and colours.
- Can you think of other activities using the counting stick?



Purpose of slide:
To demonstrate a playful activity that reinforces the concept of partitioning for stage 1 pupils.

Notes for teachers:

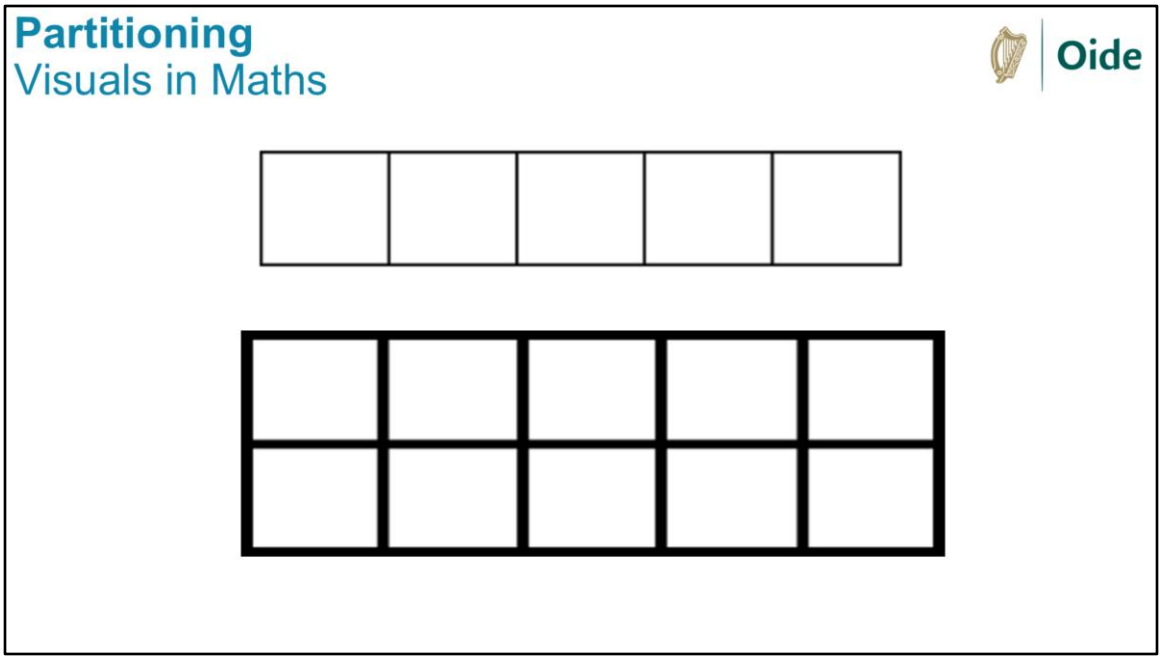
- In this 'Split Towers' learning experience, learners explore different ways of splitting a tower of ten cubes, to develop the skills of partitioning and combining.
- They make a tower of ten cubes before hiding the tower of cubes behind their back and snapping it in two.
- They show one part to their partner and leave the other part hidden.
- This activity can be found as an exemplar on https://pmc.oide.ie/resources/exemplars/stage-1/



Purpose of slide:
To further demonstrate the Split Towers activity.

Notes for teachers:

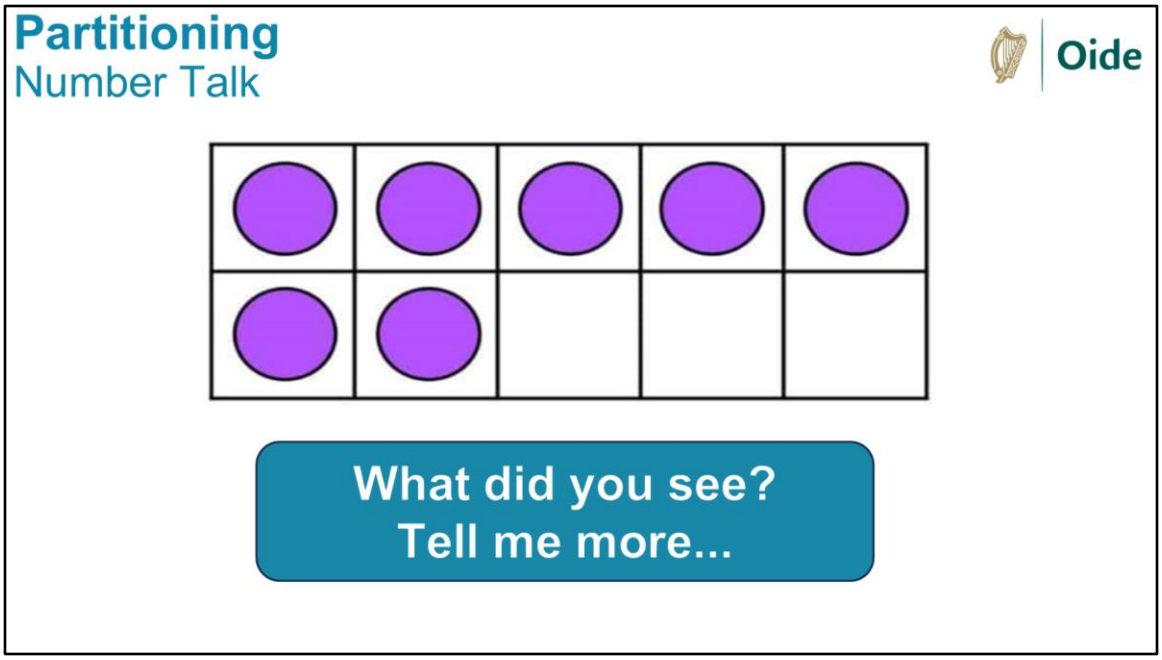
- Pupils show one part of their tower to their partner and leave the other part hidden.
- Learners then identify the number of cubes hidden, e.g. “You had 10 cubes, I can see 4, there are 6 behind your back."
- Learners then create a record of the ways they partitioned and combined the tower of ten cubes.



Purpose of slide:
To introduce / reinforce the use of five frames and ten frames for teaching partitioning.

Notes for teachers:

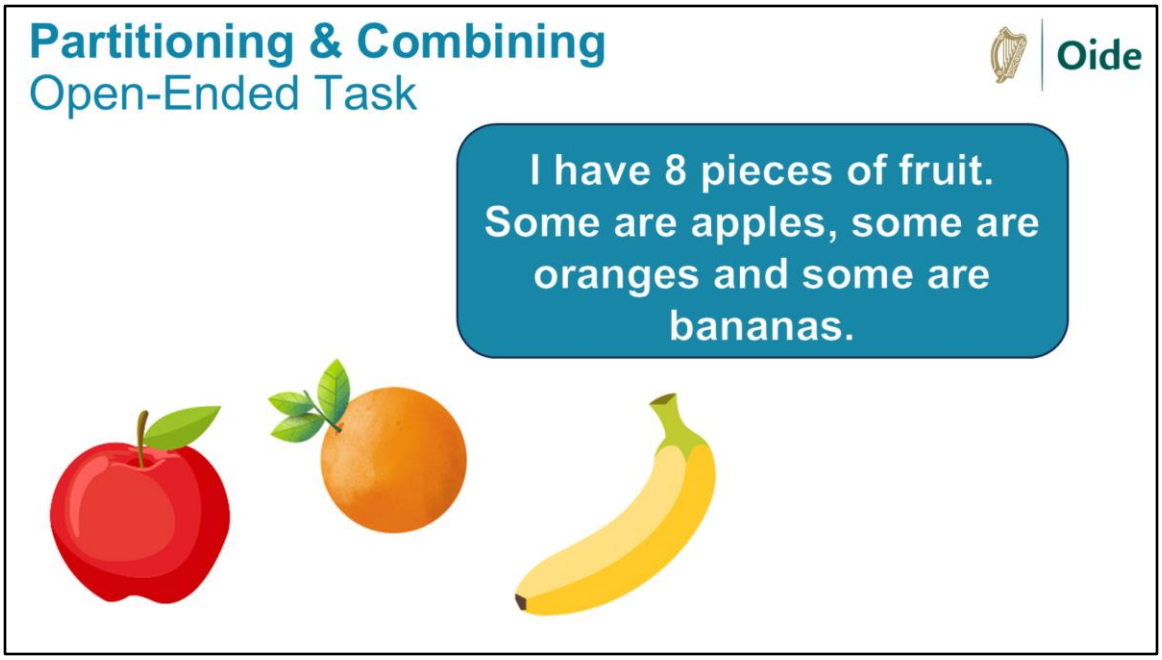
- Begin with the picture of a five frame and ten frame.
- Initially discuss an empty frame with the teachers. What do they notice?
- “This is called a five/ten frame. Why do you think that is?”
- The importance of visuals in maths: In reading we encourage children to create visuals to help develop comprehension so if we ask children to close their eyes and think of ball they more than likely will see an image of a ball not the word/letters ball. Can we say the same in maths? If we ask a child to think of 7 what do they see? The digit 7? Or a pattern for 7? If they just see the digit that doesn’t tell us anything about the quantity of 7 or how we might break that number apart to add it to other numbers. Consider how the children could represent the number 7 using multiple representations?



Purpose of slide:
To use a 'Flash Frame' to ask learners what they saw and how they saw it.

Notes for teachers:

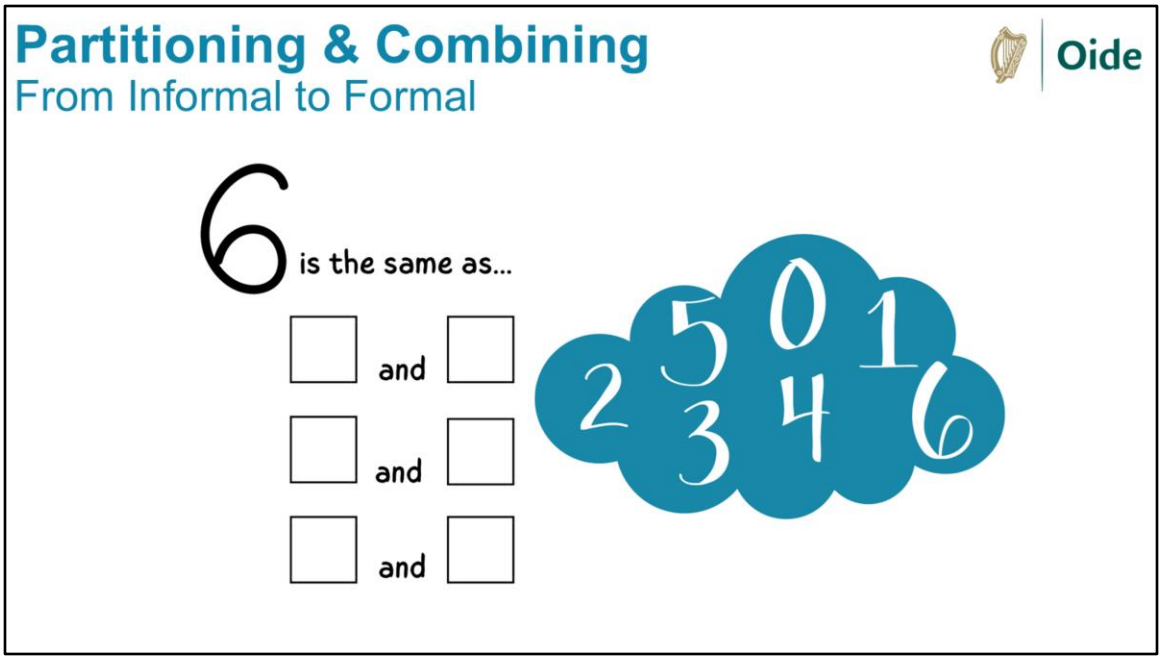
- If using this 'Flash the Frame' activity in class, notify learners that they will see a glimpse of a number represented on a frame
- Show the Number frame, then cover it if using the physical manipulatives or flash it off if using virtual manipulatives on the board
- Aske the questions 'What did you see?' 'Can you tell me more?'



Purpose of slide:
To demonstrate partitioning and combining using an open-ended task.

Notes for teachers:

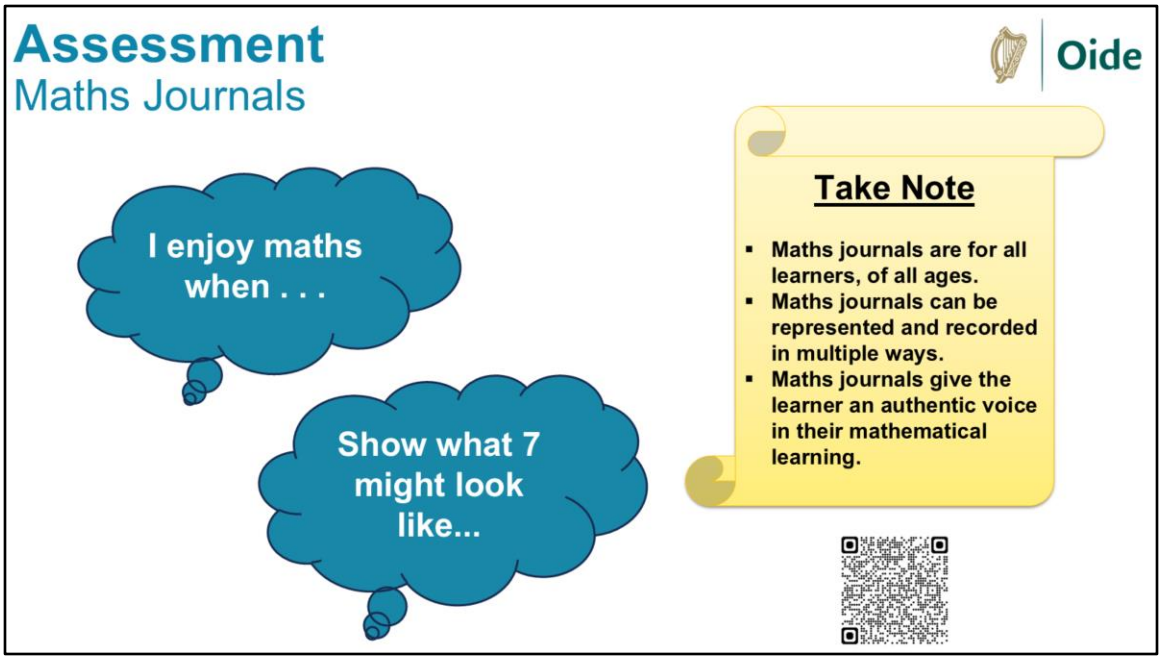
- Read the headline to learners and ask for response.
- Consider what could pupils do with this information?
    - Pupils could use multiple representations (Counters/ cubes/ lollipop sticks, drawings, dot representation).
    - Pupils could record as many combinations as they can think of.
- Reinforces partitioning and combining in a playful, open-ended way.



Purpose of slide:
To demonstrate partitioning & combining using numerals in a more formal way.

Notes for teachers:

- Consider the importance of starting with concrete resources (Lego towers/ 5 frames) before moving to numerals.
- Notice the use of Maths language 'is the same as', 'and' creating the idea of a balance (you might use a weight balance for demonstrating, as its a very visual way of showing how the number facts equal the total e.g 2+4 = 6).
- Note that 2 boxes limits the task but may be necessary to structure the task for stage 1.
- Activity could be changed to 3 boxes and target number changed.



Purpose of slide:
To provide reflective prompts for use in class.

Notes for teachers:

- Journals are useful for both teachers and learners to assess attitudes, knowledge and skills.
- Children can keep track of their thinking and understanding in the journal.
- Journals can contain general observations about Maths or can be more specific and focus on a particular concept.
- On the slide are two journal prompts which can be used in class. The first one focuses on the child's disposition and can be used across all stand units.
- Journal prompts -
    - I enjoy Maths when .... (This is a general prompt to get the children to express their feelings towards maths).
    - Show what X (number) might look like. (You can choose your own problem so that children can demonstrate different addition strategies).

- A Maths Journal encourages a child to:
    - Reflect on what they have learned and put it in their own words.
    - Discuss maths with others (pupil and teacher).
    - Identify areas of strength and weakness.
    - Evaluate what they have learned.
    - If journal writing is done on a regular basis it will help promote mathematical understanding.
    - Writing about Maths can have a positive effect that on reducing pupil's Maths anxiety.

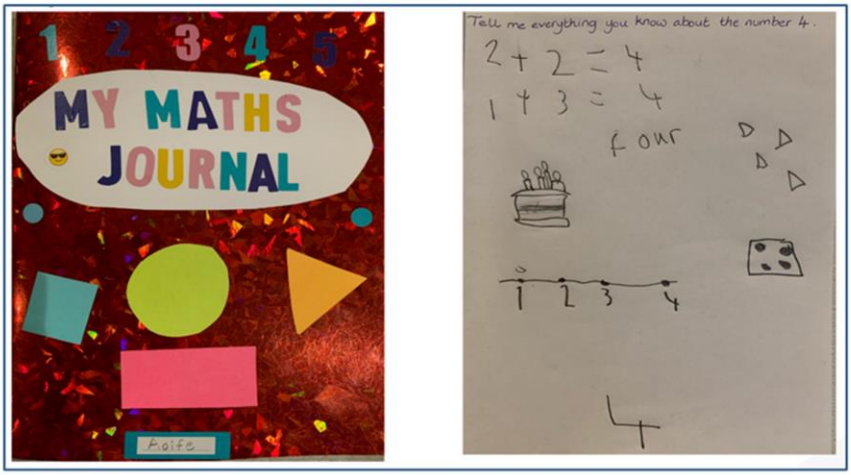
Resource:

Further information about Maths Journals available via:
https://pmc.oide.ie/resources/supportmaterialsforschools/

Assessment

Maths Journals

Oide



Purpose of slide:
To show a sample of what a maths journal might look like.

Notes for teachers:

- Children can decorate the cover like an art portfolio to make it personal to them.
- It can take the form of a copy, scrapbook or it could be a digital maths journal on a platform of choice.
- On the slide you can see the ways the child showed how they understood the number 4.