Maths and Me Routines At-a-Glance Guide

Maths and Me Routines are a collection of **playful**, engaging and inclusive interactions that promote **mathematical talk**, thinking and **modeling** among all children. These routines are proven to activate prior knowledge, foster **productive dispositions** and provide valuable **formative assessment** opportunities for teachers.

How to use *Maths and Me Routines*

These useful routines are **incorporated into the learning experiences** provided in the lesson plans. Routines are **clearly labelled**. Consult this guide to understand how to use them with your students.

Think-Pair-Share (T-P-S)

Supported by digital resources

- Pose a question or set a task for the children.
- **Think:** Allow some time for each child to consider the question/task.
- **Pair:** Allow children to discuss their thinking with a partner.
- **Share:** Invite children to share their ideas with their group and/or the whole class.

✓ Maths Talk	✓ Productive Disposition	✓ Cognitively Challenging Tasks	✓ Mathematical Modeling	✓ Playfulness

Notice & Wonder

Supported by digital resources

- Present a visual stimulus (image, poster, animation, video).
- Use **T-P-S** with each of these questions:
  What do you notice? What do you wonder?
- **Wonderings** or **Imaginings** may reveal teaching (contingency) moments to be addressed.
- Optional: Record the children's responses.
  Use mini whiteboards (MWB), maths journals or a class board.

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Reason & Respond

Supported by digital resources

- Present a stimulus (image, poster, animation, video, statement).
- Ask questions to elicit the children's responses.
- Encourage children to justify their responses.
- **Reason & Respond** activities include: What Am I?; Would You Rather?; Which One Doesn't Belong?; Same But Different; Always, Sometimes, Never; Target Boards.

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Maths and Me Routines

Write-Hide-Show (W-H-S)

- Pose a question or set a task for the children.
- **Write:** On their MWB, each child writes the answer that they have worked out mentally.
- **Hide:** When finished, each child turns over their MWB to hide their answer. If finished early, they should use this time to consider other strategies that may suit the scenario.
- **Show:** The children reveal their answers. Record all the proposed answers being careful not to give any undue weight to the correct answer(s).
- **Ask:** Are there any answers that are unreasonable? Which ones? Why do you think this? Which answer are you proposing? What strategy did you use?* What other strategies could be used?

*Revoicing: You may repeat the response to check the children interpreted it correctly.

| ✓ Maths Talk | ✓ Productive Disposition | ✓ Cognitively Challenging Tasks | ✓ Mathematical Modeling | ✓ Playfulness |

Number Talks – Quick Images

- Briefly reveal, then hide an image. Collect feedback using the **W-H-S** process.
- The quick reveal and hide encourages the children to subitise and develop their estimation skills.

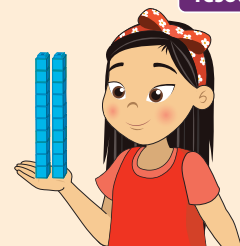| ✓ Maths Talk | ✓ Mathematical Modeling | ✓ Productive Disposition | ✓ Playfulness |

Number Talks – Number Strings

- Reveal an expression to be solved and collect feedback using the **W-H-S** process.
- Repeat by revealing a string of related expressions in turn (usually 3 to 5), each more complex than the previous one, e.g. 40-10, 40-12, 40-22.
- When sharing approaches, demonstrate the strategies described, using appropriate models (concrete materials, sketches etc.) that reflect the child's thinking.

| ✓ Maths Talk | ✓ Mathematical Modeling | ✓ Productive Disposition | ✓ Playfulness |

Build it; Sketch it; Write it

- When responding to a question, ask the children to choose a way to build (using physical materials), sketch (representations of physical materials and/or models such as bar models, number lines) and/or write (using procedural models, mathematical expressions, digits and symbols) as a way to represent their thinking and proposed solutions.
- Ask the children to explain how they modeled their thinking and why they chose that way (i.e. their reasoning).

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At-a-Glance Guide

Three-Act Task

- A cognitively challenging task (CCT) presented in three acts:
  - ① **Notice & Wonder:** Present the children with a visual stimulus and collect feedback using **Notice & Wonder** and **T-P-S**. Then share the focus question.
  - ② **Productive Struggle:** Encourage the children to work towards finding a solution to the question. They should estimate an answer, determine what information they need to find out and respond to further prompts.
  - ③ **The Big Reveal:** Invite the children to share and discuss their strategies, models and solutions. Compare and connect the children's ideas. Finally, reveal the answer.

✓ Cognitively Challenging Tasks   ✓ Mathematical Modeling   ✓ Productive Disposition   ✓ Playfulness   ✓ Maths Talk

Would This Work?

- Pose a question or set a task for the children. Allow the children time to consider, explore, answer/solve, share and discuss their approaches.
- Show an image/animation of the *Maths and Me* characters, presenting how they approached the same question/task.
- Some of the characters' approaches may show incorrect but commonly occurring assumptions; others may be atypical, but accurate solutions.
- The children should consider the possibilities and justify why they would, or would not work.

✓ Mathematical Modeling   ✓ Maths Talk   ✓ Playfulness   ✓ Cognitively Challenging Tasks   ✓ Productive Disposition

Concept Cartoon

- Present an image of the *Maths and Me* characters proposing their ideas or thinking about a scenario or a concept.
- Ask: What do you think? Explain why. Who do you not agree with? Why do you think they think that? How can we find out who is correct?
- The children should be enabled to investigate further and/or to provide their own mathematical models and thinking to justify their opinions.

✓ Maths Talk   ✓ Playfulness   ✓ Mathematical Modeling   ✓ Cognitively Challenging Tasks   ✓ Productive Disposition

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Choral Counting

- Lead the children in counting aloud together (forwards, backwards, from a variety of starting points and using different intervals if appropriate) to practice counting and encourage reasoning, predicting and justifying.
- Use one of the following approaches:
  1. **See it, then say it:** For new/less familiar sequences, use supporting visual models initially (a number path/line, 100 square). Ask: What do you notice? (patterns). Repeat while gradually removing the numbers until there is (almost) no support left (or required).
  2. **Say it, then see it:** As the children call out each number, record these so that patterns within the numbers are readily noticeable. Pause at strategic moments to ask: What do you notice? What do you think will come next? How do you know?

✓ Maths Talk	✓ Mathematical Modeling	✓ Productive Disposition

I Do, We Do, You Do

- An explicit teaching sequence to introduce specific problem-solving strategies and/or specific conceptual and procedural models.
- **I do:** Model and/or verbalise your own thinking processes (think-aloud) to explain each step.
- **We do:** The children complete similar tasks in pairs or in small groups.
- **You do:** The children undertake similar tasks independently.

✓ Maths Talk	✓ Mathematical Modeling	✓ Productive Disposition

My Favourite No

- Give the children a calculation to solve and ask them to write it and their solution anonymously on slips of paper.
- Collect these and sort them into two groups: correct solutions (yes) and incorrect solutions (no).
- From the 'no' group, choose your **Favourite No**, e.g. one that was almost correct or where a novel strategy was used. Rewrite this and display it to the class.
- Using **T-P-S**, prompt the children to discuss their Favourite No and ask: What is done well/correctly? Where did this go wrong? (identify the error) What might this person have been thinking? (identify the misconception) What needs to be done to fix this mistake? (reinforcing correct procedure/process) What have you learnt from this mistake? (emphasising mistakes as opportunities to learn).

✓ Maths Talk	✓ Playfulness	✓ Mathematical Modeling	✓ Cognitively Challenging Tasks	✓ Productive Disposition