THE ST. MARY'S PARTNERSHIP

INSET:
Gareth Metcalfe

I SEE MATHS

Partnership Lesson Drop-Ins Feedback and Next Steps

1. Mathematical vocabulary and language. Move from Exposure to Ownership

- Vocabulary is often teacher-owned
- Pupils are introduced to topical language but it is not often rehearsed or owned by pupils

Aim:

- Vocabulary becomes part of **pupil thinking and talk**

Next steps:

- Identify 2 or 3 key terms per lesson
- Plan: how vocabulary is introduced visually, when children will say it and how they will use it in reasoning.
- Vocabulary should be: seen, said, used, revisited

Mathematical Vocabulary and Language through compare/contrast – EYFS/KS1

Image A

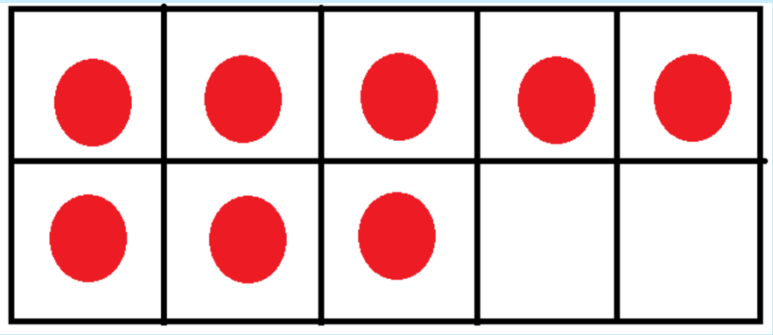
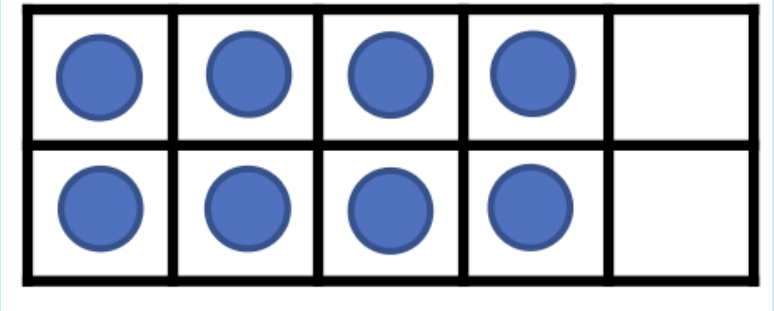


Image B



Which image shows 8?

Image A: 5+3 in a ten frame
Image B: 2 rows of 4 in a ten frame or 4 columns of 2

Key Vocabulary:
equal, represent, the same as

Teacher introduces this as an I DO then stops talking:
"Both images represent 8. I'm going to stop. Don't answer yet."

Pupil talk then share:
"I notice that…"
"They are the same because…"

Mathematical Vocabulary and Language through compare/contrast – KS1/2

Image A

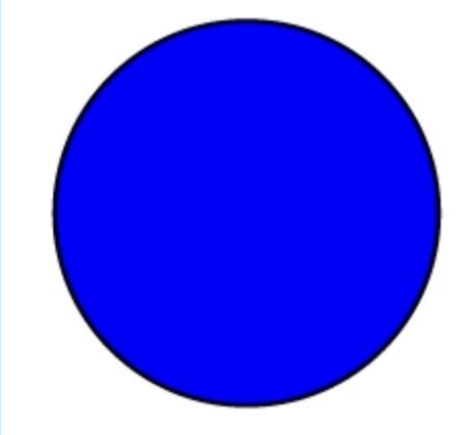


Image B

Circle or sphere?
Image A: 2D circle
Image B: 3D sphere

Questions:
- What's the same?
- What's different?
- Why?
- Why is one *not* a circle?

The task provides visual representations alongside language and paired examples to sharpen meaning

Provide sentence stems and structured language:
"A sphere is not a circle because…"
"I notice that…" "I agree/disagree because…" "This works because…" "This cannot be correct because…"

Scaffolds: Start with sentence stems, gradually remove as confidence increases

2. Pupil Participation. Move to every child thinking and participating in every lesson.

- Too many lessons rely on hands-up and individual answers
- Thinking and participation is not evident from all pupils
- Lessons are often driven by the most vocal and confident pupils

Aim:

- All children think and participate
- Mathematical language is **explicit and practised**
- Visual representations support understanding
- Participation from **all** pupils is built into **every** lesson. Discussion is planned, modelled and expected

Next steps:

- Show-me boards, think time before discussion, all children vote non-verbally before discussion begins
- Structured turn-taking e.g. Partner A explains, Partner B paraphrases
- Teacher selects children after **discussion** and after every pupil has rehearsed their thinking aloud

Pupil Participation and Oracy – UKS2

Whole-Class Participation

Which image shows 2/3?
Which image **does not show** 6/8? Use the visuals first before calculating

Routine:
- All pupils vote non-verbally (hands hidden/whiteboards)
- No calling out
- Silent think time and partner talk before any answer is taken

Teachers should explicitly narrate routines:
- "I'm stopping you now so everyone can think."
- "You will all have an opinion before we continue."
- "Turn and convince your partner."
- "Be ready to explain/justify your answer."

Sentence Stems
"Image... cannot be 2/3 because…"
"Image…. does not show 6/8 because…"

Image A

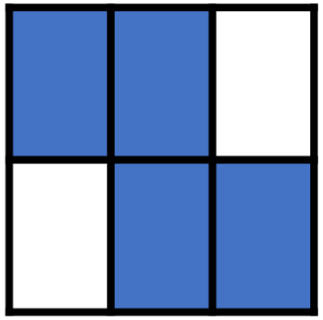


Image B

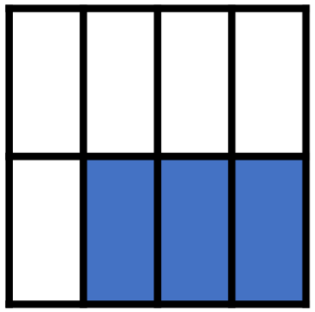
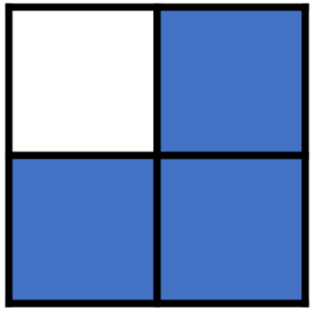


Image C



Building mathematical discussion more into the I DO/WE DO

3. Task Design to support rich discussion and Partner talk. Move to building mathematical discussion more into the I DO WE DO parts of the lesson.

- I DO is often a teacher modelled example. WE DO is often a teacher-led second example which limits pupil thinking and discussion

Aim:

- I DO should be short and purposeful, model the structure but not everything
- Teacher then stops and asks children to notice, predict or explain – building in partner talk before continuing
- WE DO should mean: we think together; we discuss together

Next steps:

- Instead of another example: use a similar example; include a. misconception; ask children to reason before calculating

I DO LKS2

- Teacher displays an array and a visual representation of equal grouping
- Does not explain fully

Teacher Stops and asks:

- What does each row show?
- What does each column show?
- What does each group show?

The I DO models the structure – pupils do the thinking.

Image A

Image B

WE DO KS1/LKS2 – Comparison Task

Compare Image A and Image B

Questions:

- Do the images show the same total?
- Do the images show the same structure?
- Why / why not?

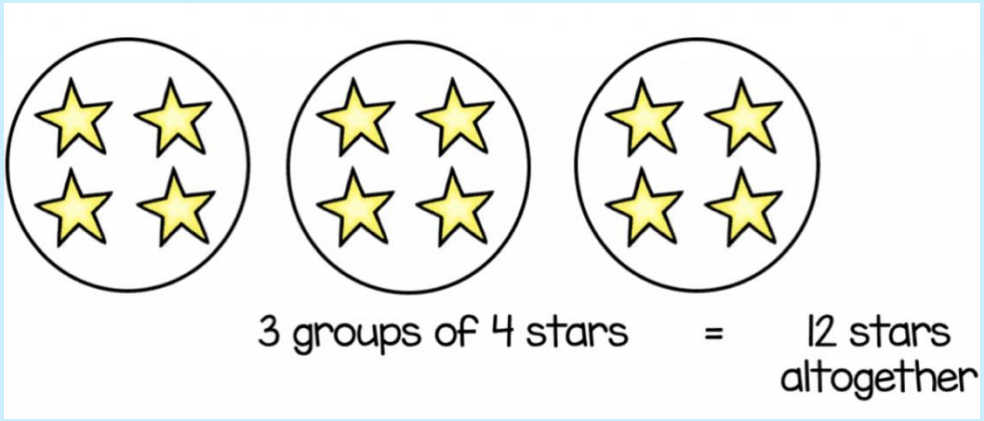
Sentence Stem:

"They are the same/different because…"

Fewer questions, more depth; Two examples instead of many; Correct vs incorrect; Multiple representations of the same number.

Image A

Image B



Visuals to support reasoning and promote discussion

4. Reasoning and Number Sense. Visual first, language second.

- Reasoning improves when: visuals come before symbols; children compare examples; language is structured
- Number Sense sessions will: build fluency; strengthen visual understanding; develop mathematical talk

Aims:

- As a Partnership we will: agree shared discussion routines, review lesson planning through language, participation and task design
- Maths lessons allow every child to think, talk and reason
- Define consistent routines/scripts across year groups: “I notice…” “Do you agree or disagree?” Convince me…” Explain it another way.”
- Teachers plan vocabulary explicitly, design moments for all to respond, build talk into I DO/WE DO, usual visuals to support reasoning; model and embed discussion routines

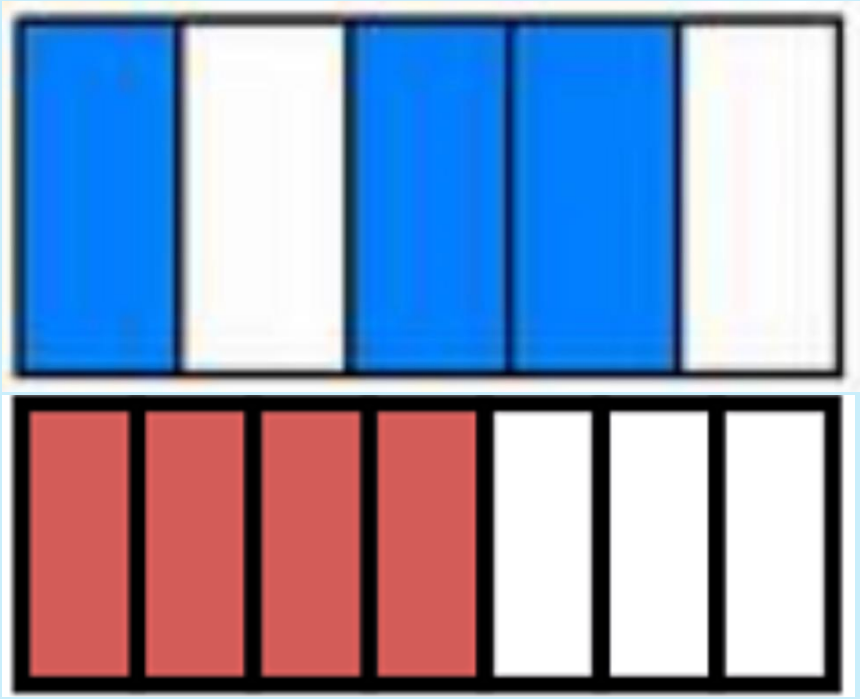
Discussion-rich task design – UKS2

Which fraction is larger: 3/5 or 4/7?

- No calculating first
- Use a model
- Convince your partner

Focus Question

"How do these two visuals help us decide?"



This visual supports reasoning because:

- Both bars are the same length = fair comparison
- Each bar is split into equal parts
- Pupils can *see*:
  - 3 shaded out of 5
  - 4 shaded out of 7

I DO (brief): "These bar models are the same length. One shows 3/5, one shows 4/7.'' **STOP-THINK-TALK**

WE DO (discussion): Which shaded part looks larger?" "How do you know?" "What do you notice about the size of the parts?"

Sentence stems: "Even though ___ has more parts, ___ is larger because…'" "The parts in fifths/sevenths are ___."

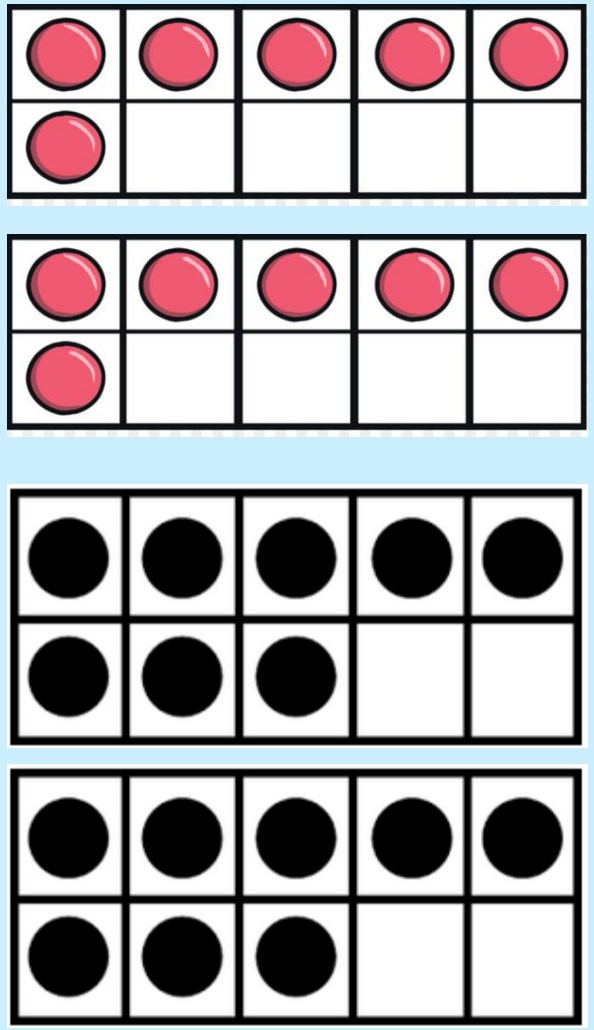
Discussion-rich task design – EYFS/KS1

Double 6 or double 8. Two lots of 6 or two lots of 8 – which is greater?

Representation
Ten frames only (no numbers initially)

Teacher Prompt
“What do you see/notice before we calculate?”

Sentence Stem
“I notice that double ___ is greater because…”



Forthcoming Dates for CPD with Gareth Metcalfe

Thursday 15th January – Task design and routines for building rich mathematical discussion (online)

Thursday 29th January – Generation of discussion through the I DO/WE DO stages of the lesson (in person twilight – St Mary's)