



CAMBRIDGE

Finding the words

How talk shapes mathematical understanding at every stage

Frances Watson

15 and 16 July 2026

Housekeeping

- Health and safety
- Fire safety
- Washrooms



Agenda

1. Types of talk in classrooms
2. NRICH task 'Reflecting Squarely'
3. Talk opportunities and research
4. LEGO® 'Brick Like This!' game
5. Reflections

Types of talk

1. Please note down all the different types of talk you can think of that take place in your classrooms.
2. Consider where your 'types of talk' would be positioned in this Carroll diagram:

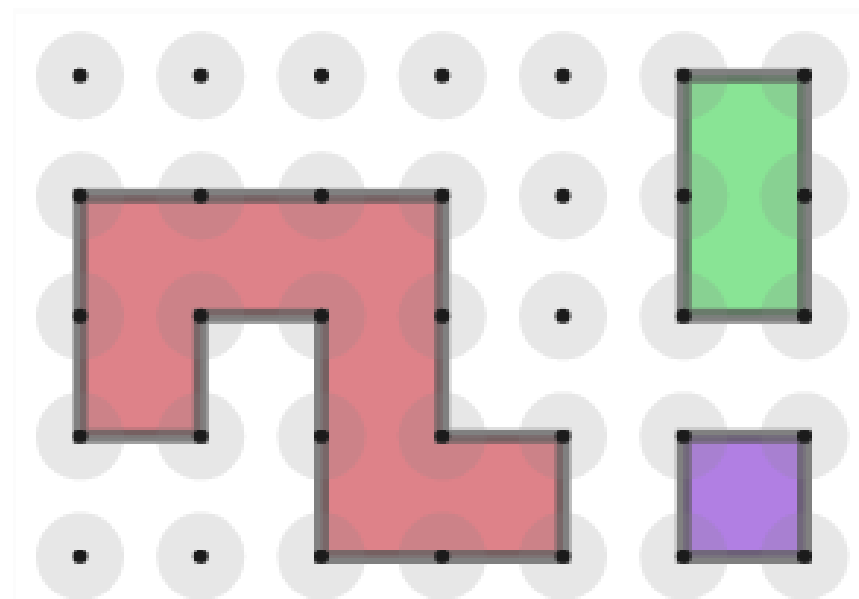
	Teacher	Not teacher
Private		
Not private		

Reflecting Squarely from NRICH

1st min YOYO (You On Your Own)

2nd min talk with someone else

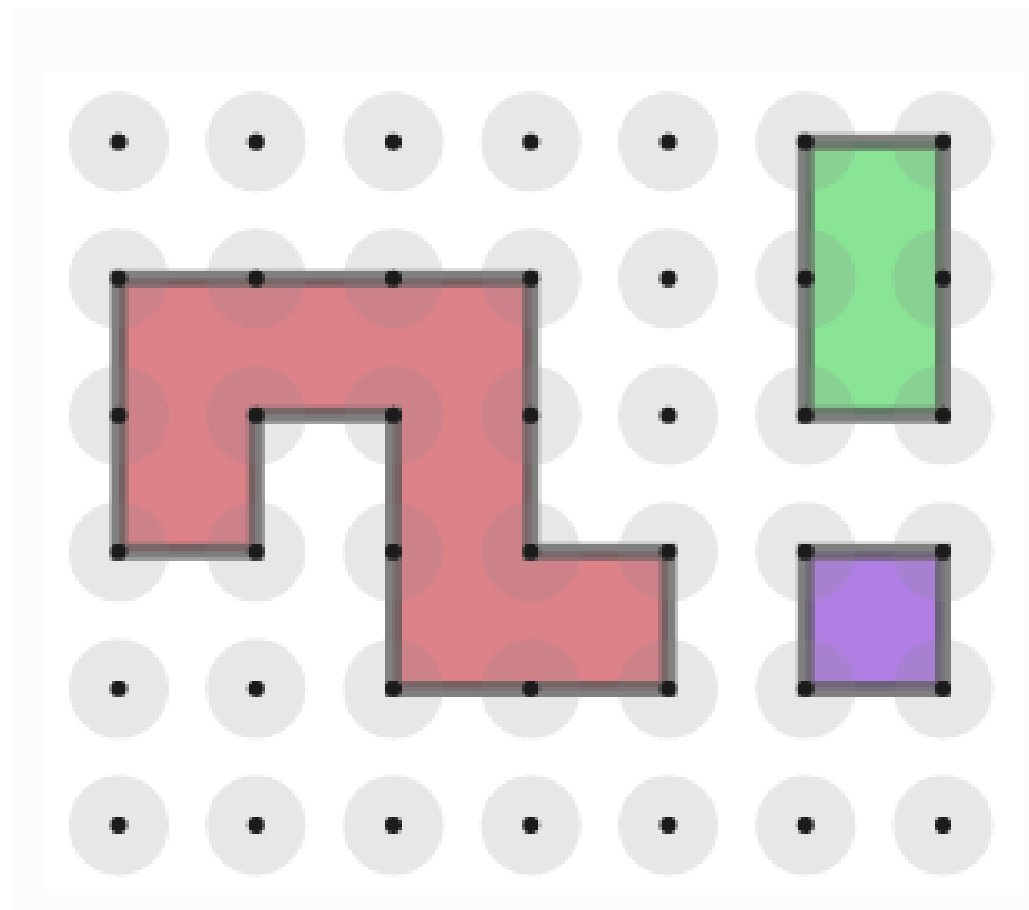
What questions do you have about the task posed?



Task: In how many ways can you fit all three pieces together to make shapes with line symmetry?

Reflecting Squarely from NRICH

In how many ways can you fit all three pieces together to make shapes with line symmetry?

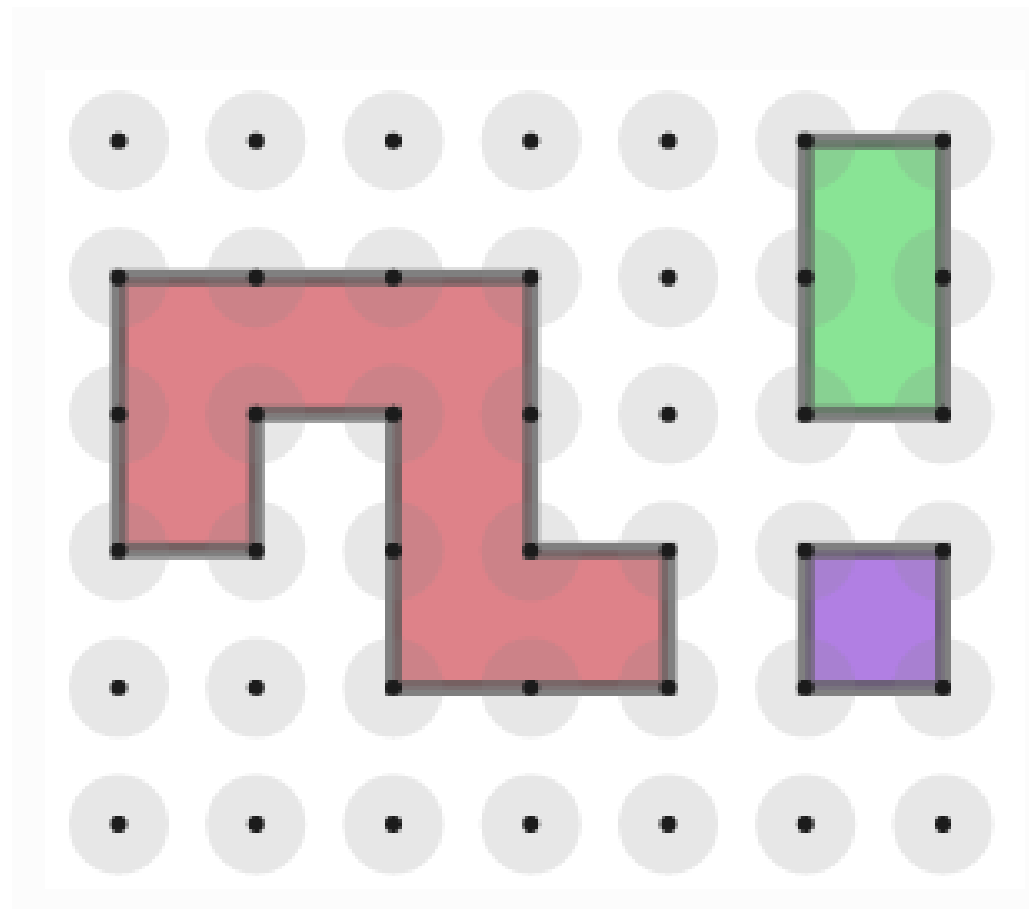


Reflecting Squarely from NRICH

Switch partner / people and exchange experiences:

- What have you tried?
- What are you thinking?

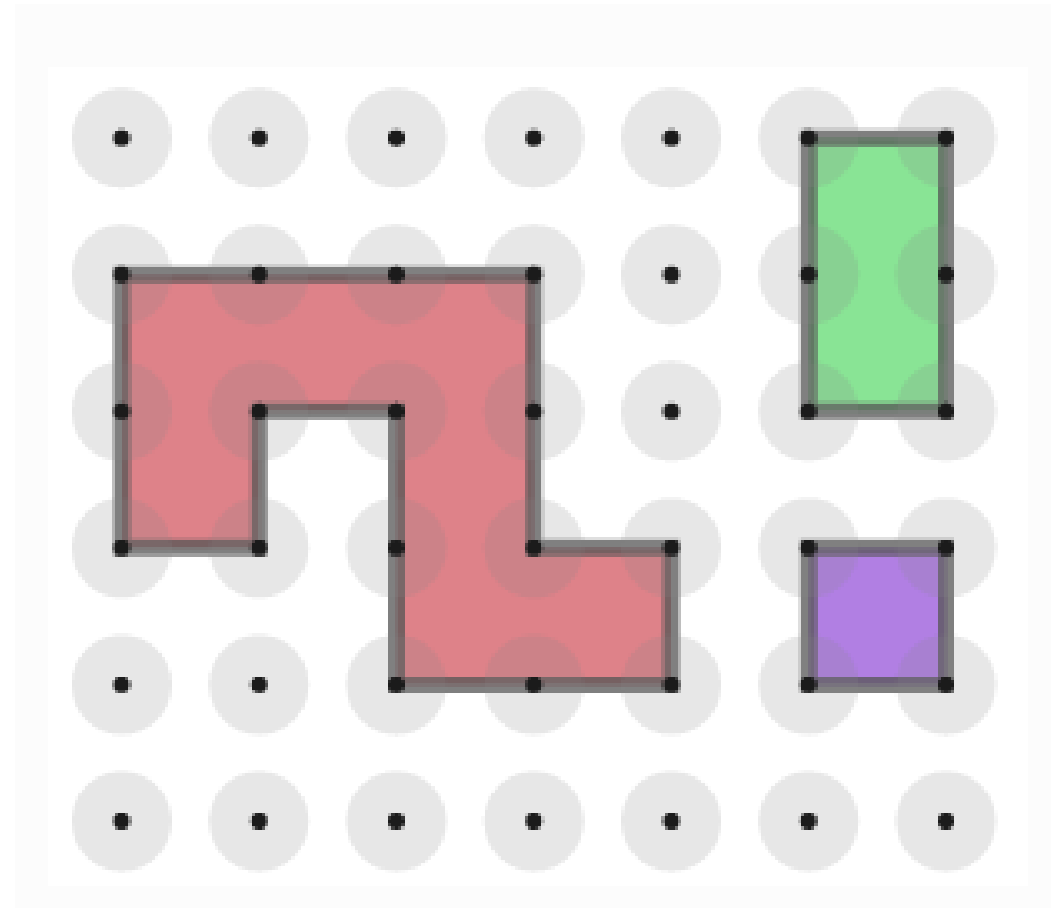
Make sure you take turns in talking / questioning / responding!



Reflecting Squarely from NRICH

What difference did the following make to your experience:

1. Thinking before talking? (YOYO).
2. Talking to a partner whilst working?
3. Talking to someone new about your thinking?
4. Contributing to the group?



Research

Listening **to**, as well as listening **for**.

(Helen Williams)

T	Take part
O	Opportunities
L	Links
D	Debate

(Mulholland, 2022)

- Explicit connections.
- Engagement in cognitively demanding subject matter.
- Multiple approaches to, and perspectives on, reasoning.
- Understanding of subject matter procedures and processes.

(Ingram & Kimber, 2025)

Reflections

Is there anything you would like to add to or amend about your Carroll diagram now?

	Teacher	Not teacher
Private		
Not private		

1st min YOYO (You **O**n Your **O**wn)

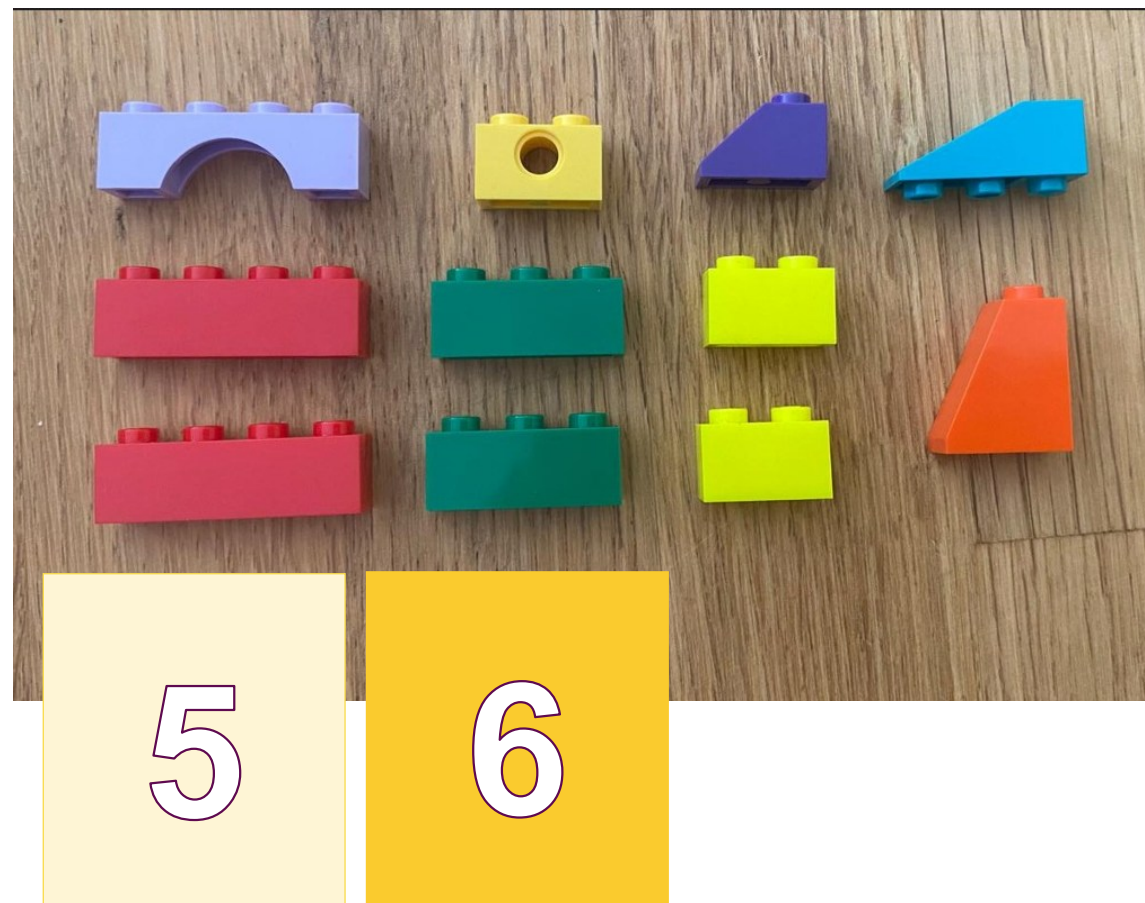
2nd min talk with someone else

LEGO® ‘Brick Like This!’ game

This game is played in pairs.

There is an ‘instructor’ and ‘builder’ role for each task; these roles swap after each round.

Only the instructor sees the picture on the card that they must then describe for the builder to build.



LEGO® ‘Brick Like This!’ game

Restrictions:

- Instructor **may not** say:
 - Colour names
 - The word ‘on’
 - Numbers (but ok to show)
 - Anything other than ‘yes’ or ‘no’

Pick one of these restrictions and choose a new ‘5’ or ‘6’ card to play again.

The game also includes:

- Instructor may not see
- Instructor may not speak (or gesticulate)

References

Askew, M. (2011). *Private talk, public conversation*.

<http://mikeaskew.net/page3/page5/files/Privatetalkpublicconverse.pdf>

Ingram, J., & Kimber, E. (2025). Developing and implementing task-focused guidance for language-responsive mathematics teaching.

<https://ora.ox.ac.uk/objects/uuid:155ab5f8-fde9-4487-8ca1-f67691877aa7/files/r02870x60f>

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Mulholland, K. (2022, November 10). *EEF blog: Promoting high-quality talk in maths*. Education Endowment Foundation. <https://educationendowmentfoundation.org.uk/news/promoting-high-quality-talk-in-maths>

Feedback



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Get in touch!

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Thank you!

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