

Continuing our discussion 1^é-3^é

Marian Small

Ottawa

février 2018

ordre du jour

- Your follow-up from last time
- Assessment- what is worth assessing
- Communication
- Spatial sense

ordre du jour

- Last time we talked about intentions, consolidation, and understanding questions.
- Share with someone near you what you did to follow up.

Let's hear

- Some of your stories— whether there were struggles or successes

Assessment

- Diagnostic tasks
- Formative assessment

Assessment

- Assessment as learning

Assessment

- Observational assessment

Assessment

- Assessing skills and concepts

Assessment

- Performance tasks

Let me start with a diagnostic task example:
Gr 1 What do addition and subtraction mean?

- You have a train of 10 linking cubes.
- How could you break the 10 into parts?

Let me start with a diagnostic task example:
Gr 1 What do addition and subtraction mean?

- If you only had a few reds, and a few more blues, how many might you have altogether?

Let me start with a diagnostic task example:
Gr 1 What do addition and subtraction mean?

- If you removed a few from your 10 cubes, how many would you have left?

During instruction

- You are listening and watching for things like:
 - What models they use.
 -
- You might also observe whether they count on or count all, to get a sense of where their counting comfort is.

Bar diagram

- The bar diagram looks like this, e.g.



During instruction

- Their comfort with the bar diagram model
- their ability to distinguish between situations where the whole is needed (addition) and those where a part is needed (missing addend- subtraction)

During instruction

- Recognize addition as joining
- Recognize part/part/whole situations as both addition and subtraction
- Recognize subtraction as take-away

During instruction

- Recognize subtraction as comparison
- Whether they can use number paths
- whether they can use bar diagrams

Independent practice at the end of a lesson, e.g.

- How might you model $6 + 5$?
- How might you model $10 - 4$?

Independent practice at the end of a lesson, e.g.

- Describe a take-away story for $15 - 7$?

Independent practice at the end of a lesson, e.g.

- I read 14 pages of a book yesterday and 8 pages today.
- How many more pages did I read yesterday?
- How do you know?
- How could you represent the problem using a bar diagram?

Assessment as learning

- This is supported by developing success criteria with students for tasks. For example....

Task

1. Katie's brother is having a party.

[art: show cake with 12 candles]

Katie is 5 years old.

How old was he when Katie was born?

Tell how you know.

2. Make up a problem about a brother and sister that asks how much more of something the sister has.

In discussion, I ask questions like:

- How does the Katie problem really ask how much more one number is than another number?

In discussion, I ask questions like:

- What models and strategies might you have used to solve the birthday problem?

In discussion, I ask question like:

- Why might you have shown both 12 and 5 to solve the problem?

In discussion, I ask questions like:

- How are comparison problems like part-part-whole problems?

Success criteria

- I figure out how old the brother was when Katie was born.
- I make up another problem about comparisons.

Assessment of learning

- I provide suggestions for observational assessment,
- Skill assessment,
- Concept assessment
- A performance task

Observational assessment

- Already showed you that list

Skill assessment

- Questions like these:
- Use a ten-frame to model $4 + 8$.
- Use a number path to model $6 + 4$.

Skill assessment

- What does this show?

11	
6	5

Concept assessment

- Questions like these:
- What would you draw to show $8 + 3$?
- What would you draw to figure out:
- If there were 4 dogs and 5 cats, how many pets were there?

Concept assessment

- Questions like these:
- When might you figure out $12 - 3$?
- What subtraction might you do if you saw 4 boys and 8 girls?

Performance task

Maybe: Draw a picture that you could describe with a few additions and a few subtractions.

Tell what you would add and subtract and why.

Think about one of these topics in your grade level

- Grade 1: Money
- Grade 2: Decomposing numbers
- Grade 3: Introducing multiplication

Think about one of these topics in your grade level

- Think of:
- a few questions for a diagnostic
- some things you would be listening for in assessment for learning
- some observations
- some skill and concept questions

Communication

- Not sure what your questions really are.
- I can say that kids won't be able to communicate unless we model for them and we give them things that you really can say something about other than how they got an answer.

Communication

- So if I ask:
- What is $42 + 35$? How do you know?

- It is harder for them to communicate about than if I ask:
- How do you know that $42 + 35$ is more than 70 even before you get the answer?

Communication

- So if I ask:
- Why would you say that the yellow box is 3rd?



- It is harder for them to communicate about than if I ask:
- When would you want to be the first at something?
When would you not?

Communication

- So if I ask:
- What does $4 + [] = 8 + 7$ mean?

- It is harder for them to communicate about than if I ask:
- How do you know that $[]$ is more than $**$ if $42 + [] = 61 + **$?

Practising communication

- Let's solve a problem.
- Let's figure out what we would want kids to be able to say.

Practising communication

- The problem:
- There are some Grade 2 and some Grade 3 kids.
- Altogether there are 48 kids.
- But there are 4 more Grade 2s than Grade 3s.
- How many of each are there?
- You need to tell HOW you figure it out and why your answer makes sense.

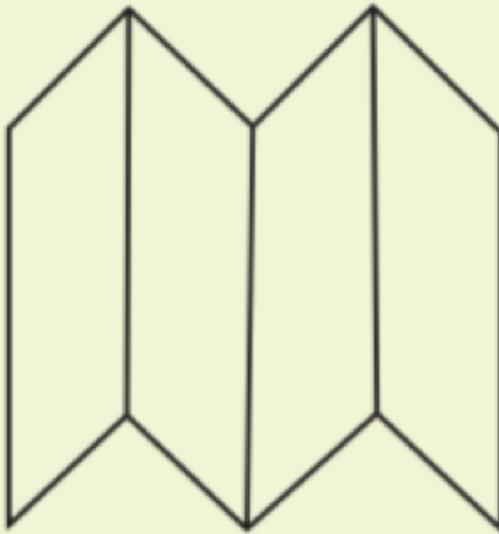
Spatial sense

- A resource:
- <https://wordpress.oise.utoronto.ca/robertson/early-years-math-geometry-and-spatial-reasoning/>
- Grayson Wheatley- Quick Draw

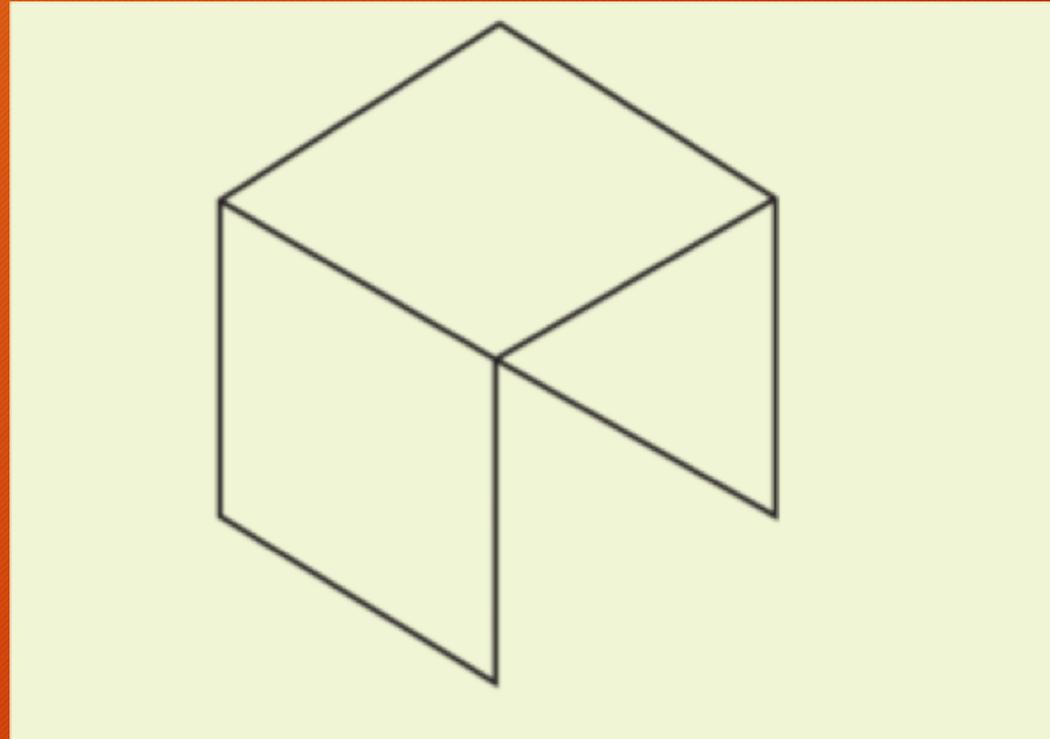
Spatial sense

- I will show you an image quickly.
- You draw what you remember.

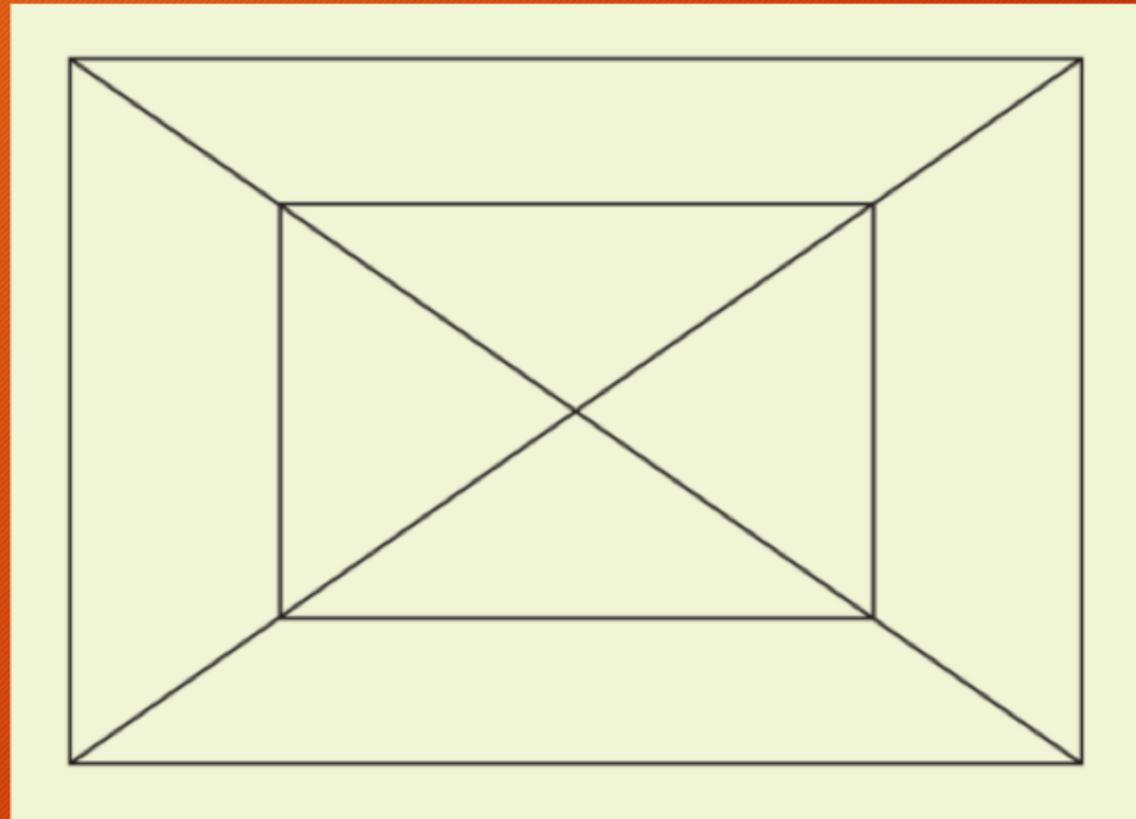
Spatial sense



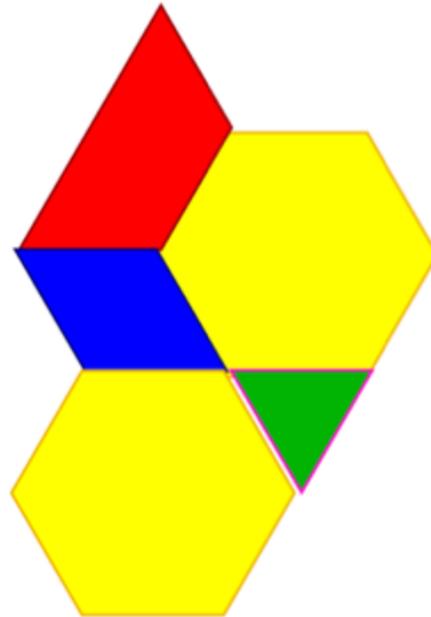
Spatial sense



Spatial sense



Spatial sense

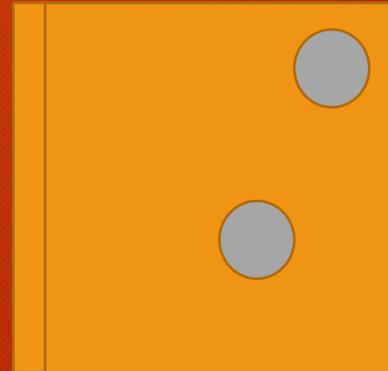


Use 5 linking cubes

- How many structures can you build that are different?

Hole Punch

- What will the paper look like when I open it?

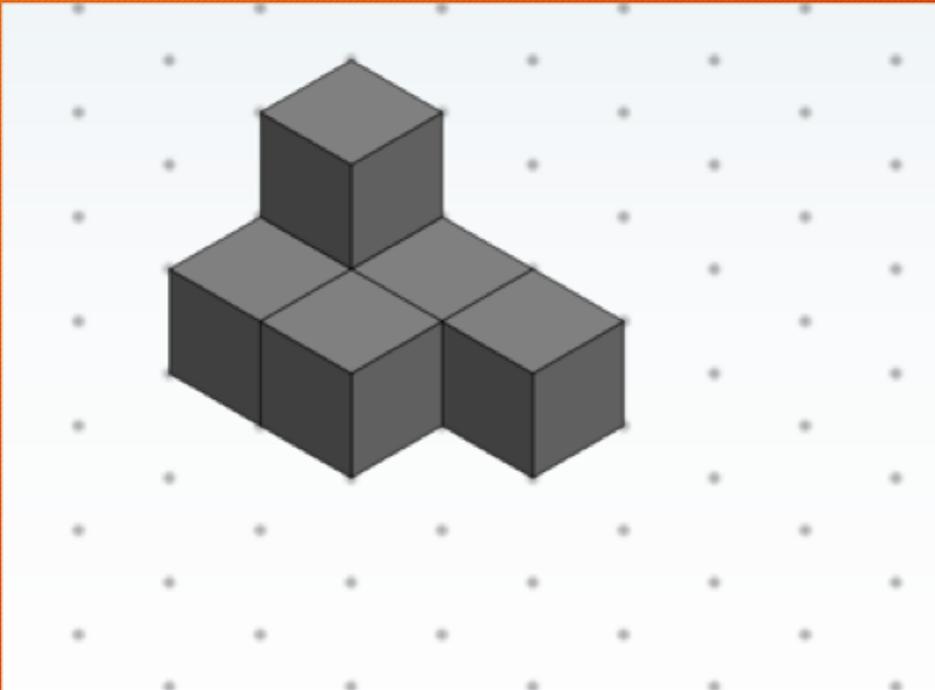


Changes, Changes

- Build a structure.
- Have students look.
- Change one thing about it while they close their eyes.
- They find it.

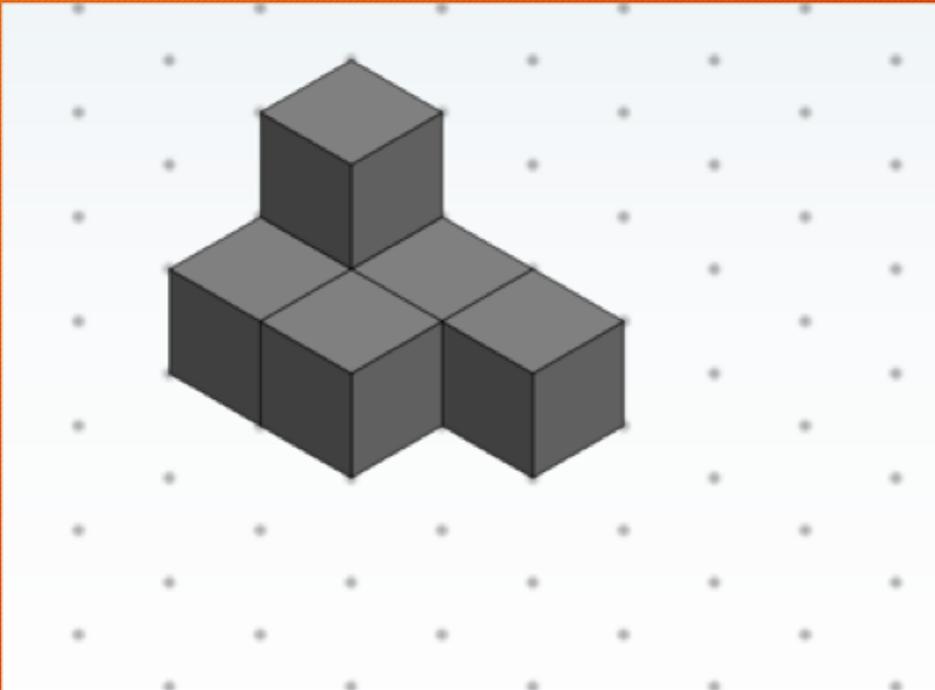
Same or different?

- Which is the same as this?



Same or different?

- Which is the same as this?

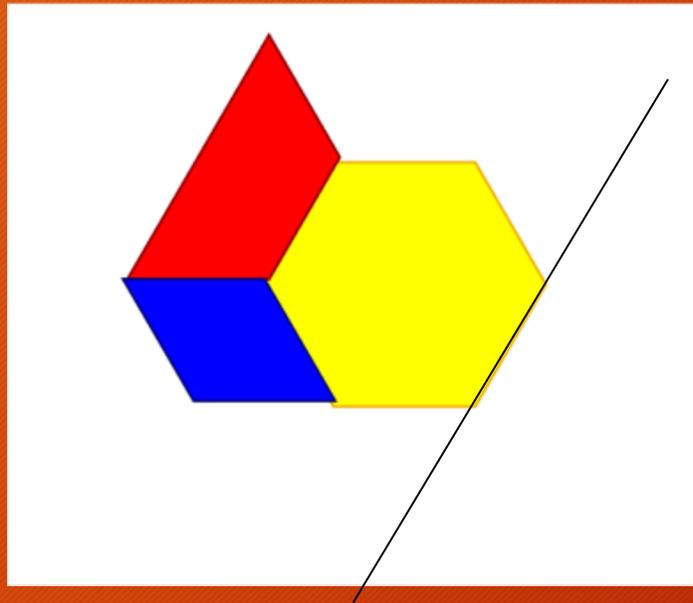


Perspective

- Build a structure.
- Predict what it will look like from the top/front/side.
- Or do it the other way around, e.g. here is a side view- what could the structure be?

Symmetry

- What will the other half look like?



Using manipulatives effectively

- How will we use Cuisenaire rods to show:
 - $4 + 7$
 - $14 - 5$
 - 3×6
 - $12 \div 3$

Using manipulatives effectively

- How will we use Cuisenaire rods to show:
- That $a + b = b + a$
- That you can add the same amount to both if you have $a - b$

Using manipulatives effectively

- How will we use Cuisenaire rods to show:
- How to solve $4 + \square = 12$.
- How to solve $3 \times \square + 2 = 17$

More questions?

- Are there other questions you want to bring up?

Download

- You can download this presentation at

www.onetwoinfinity.ca

Recent presentations

OttawaFP2