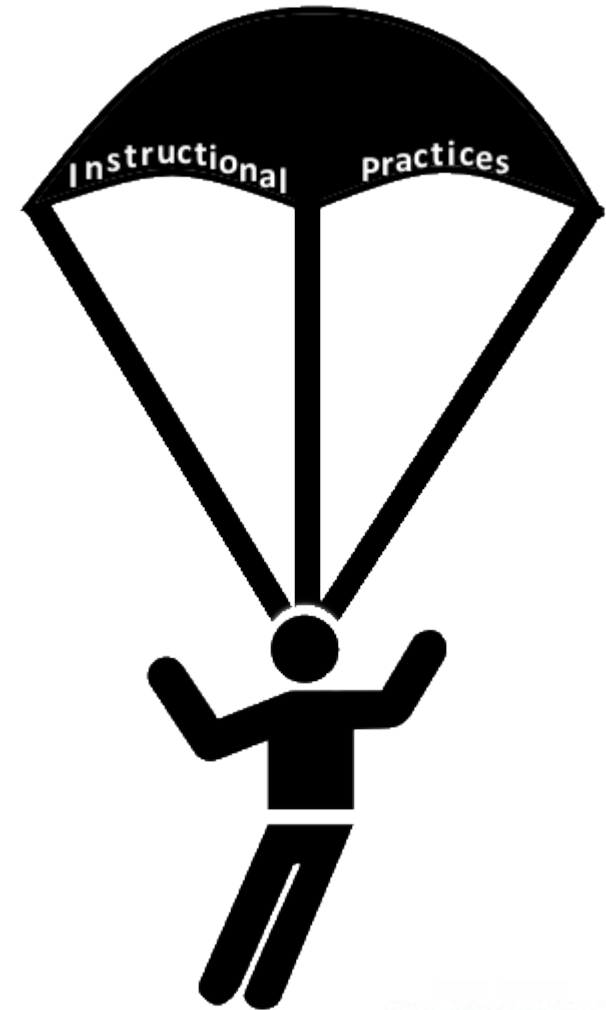


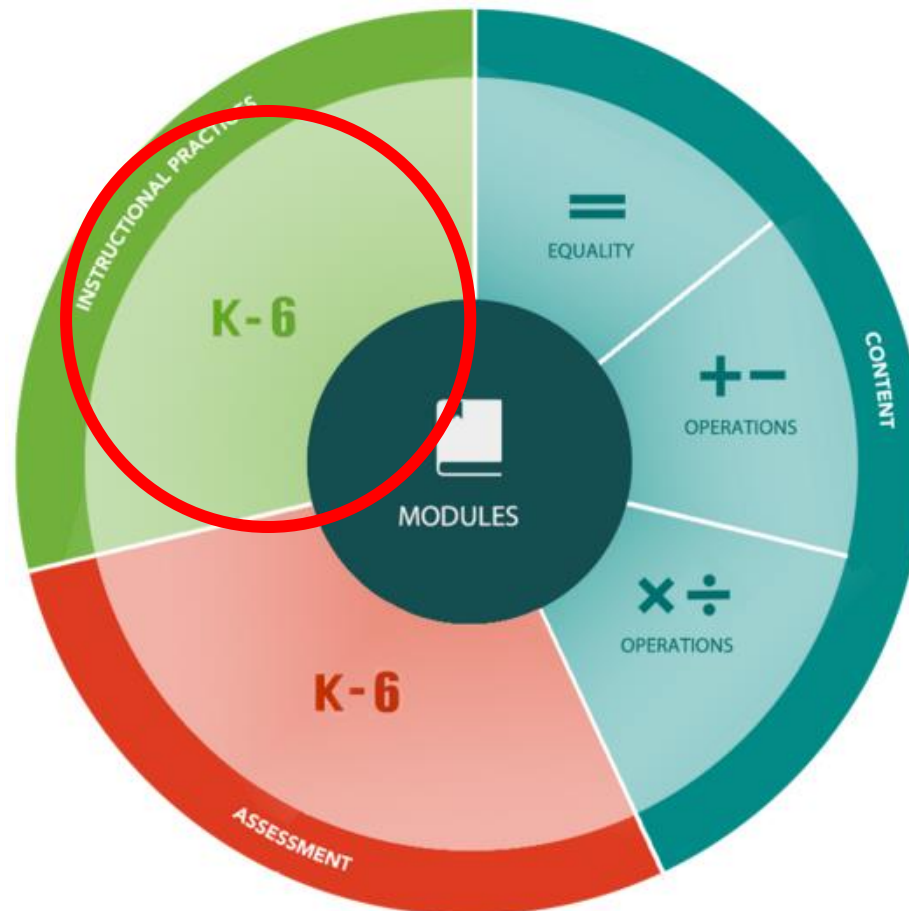
Instructional Practices: Positive, Practical, Purposeful...and Priceless!





Learning Guide

<http://learning.arpdc.ab.ca>

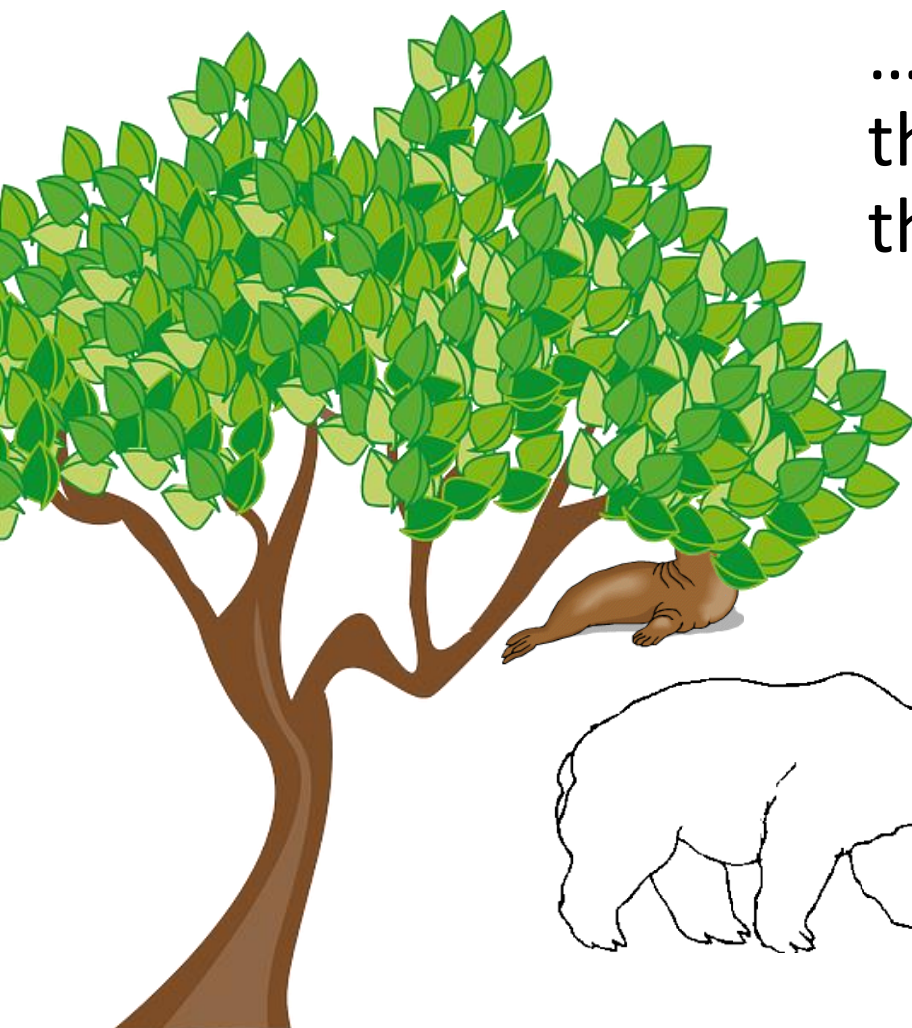
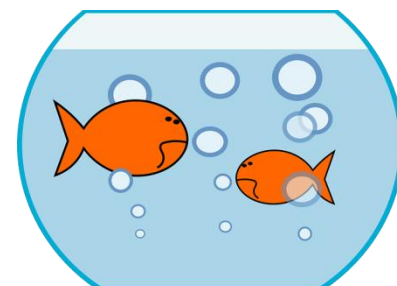
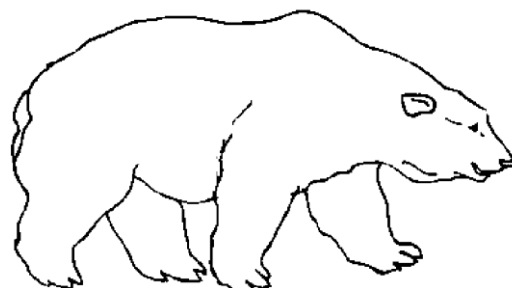
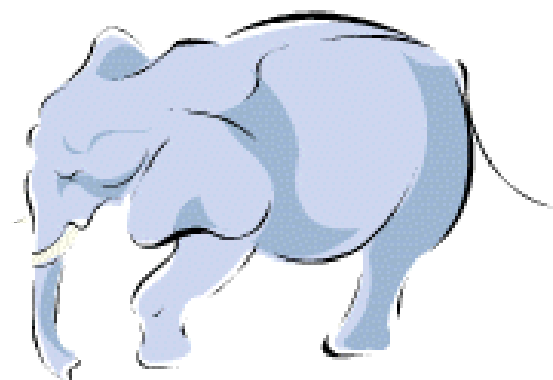
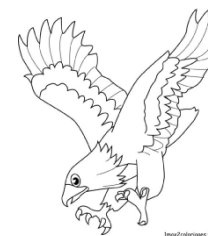


Who's With Us Today?

Pre-Service Teacher	K – 2 Teacher	3 – 6 Teacher	Admin	Learning Coach	Other

Instructional Practices

...and what if we asked these animals to climb that tree?



Webinar Objectives

- Develop participants' understanding of Instructional Practices
- Explore a variety of instructional strategies
- Provide strategies for responsive instruction
 - Parent Communication
 - Resource Selection



What is Instructional Practice?



Big Ideas

Teachers continuously use their professional judgement to

- ❖ foster a positive mathematical classroom culture,
- ❖ create opportunities for observations, conversations and other forms of assessment, and
- ❖ design and implement responsive instruction in order to develop students' conceptual and procedural understanding of mathematics.

Role of Alberta Education

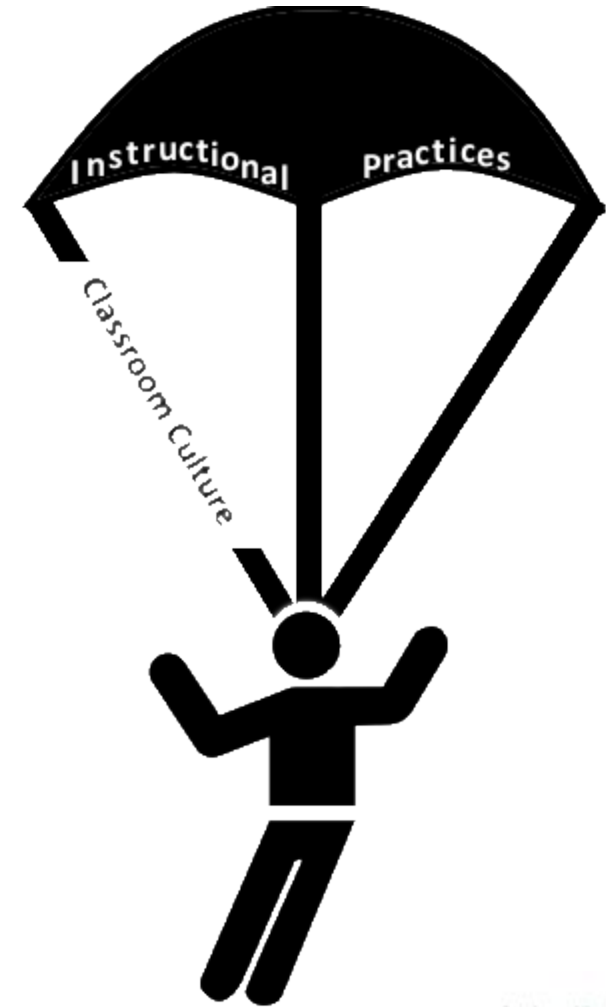
❖ Provides a Program of Studies

- The Front Matter
- The 7 Mathematical Processes
- The Outcomes

❖ Does NOT dictate

- Order we teach
- Time allotted
- Instructional strategies
- Resources
- Day to day classroom assessment

Classroom Culture



Classroom Culture

Big Idea 1

Teachers continuously use their professional judgement to foster a positive **classroom culture**.

Classroom Culture

Why focus on developing a positive classroom culture?

❖ Student Engagement, Risk Taking,
Collaboration and Participation is increased

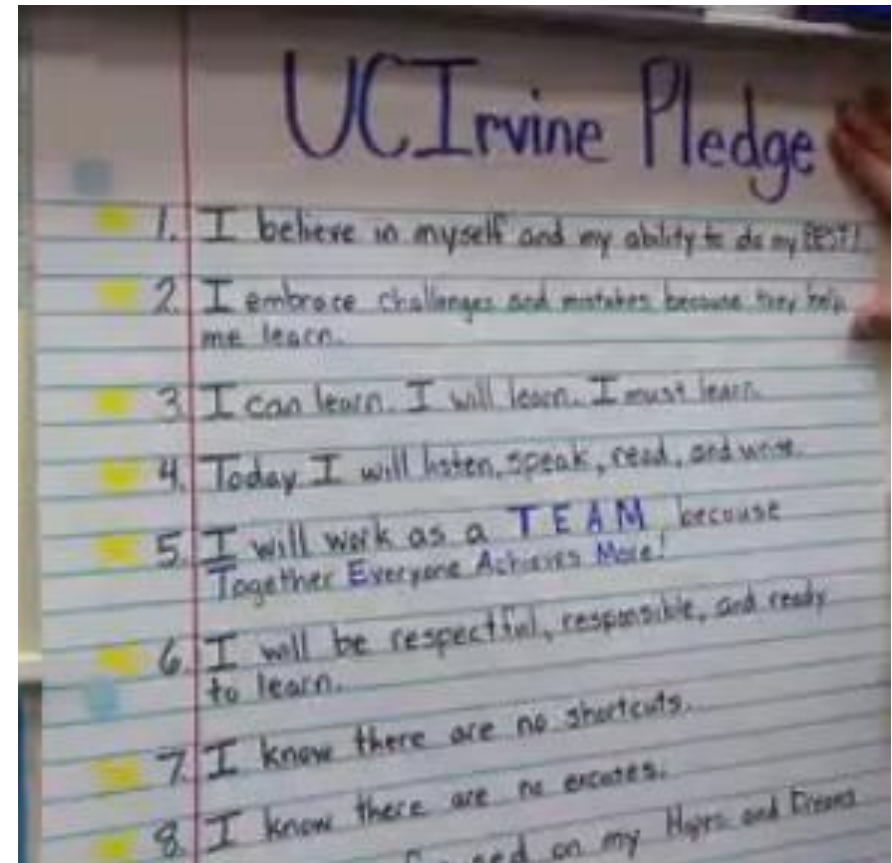
Classroom Culture

Strategy:
Classroom Culture



Classroom Culture

Normalize error



Classroom Culture

When we make a mistake...

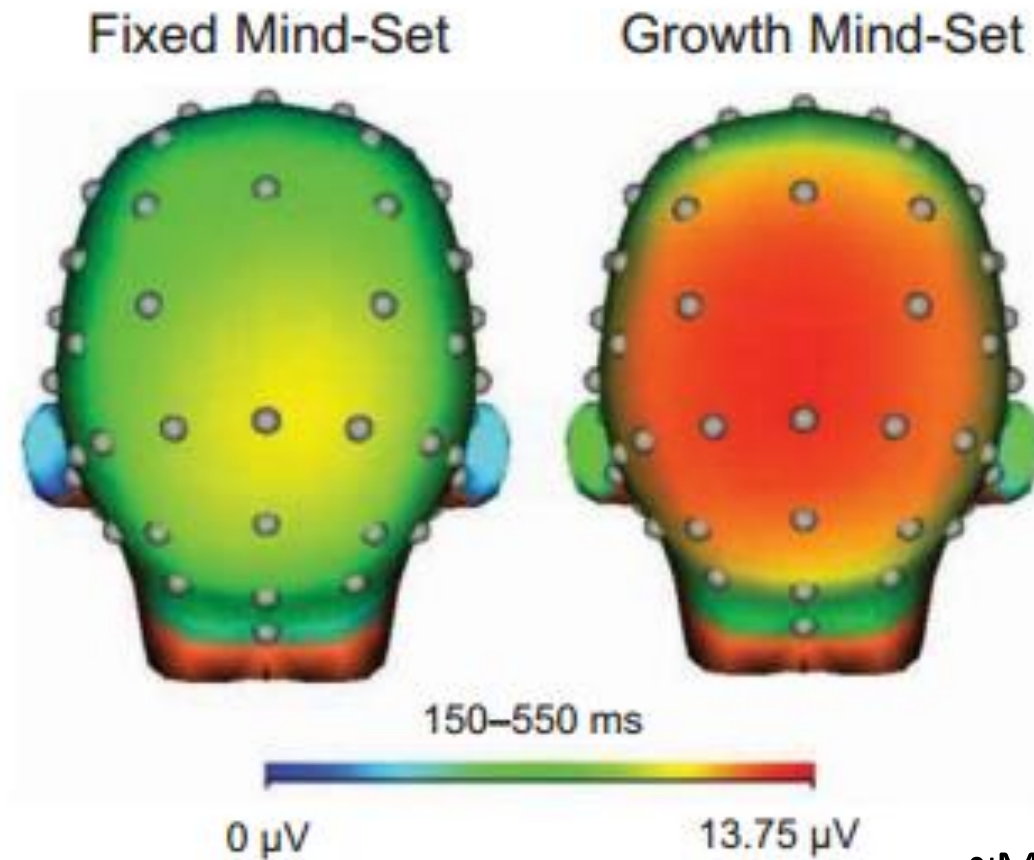


- A. Increased electrical activity
- B. Awareness of and attention to the error

Brain sparks and grows

~Moser et al. (2011)

Classroom Culture



~Moser et al. (2011)



Classroom Culture

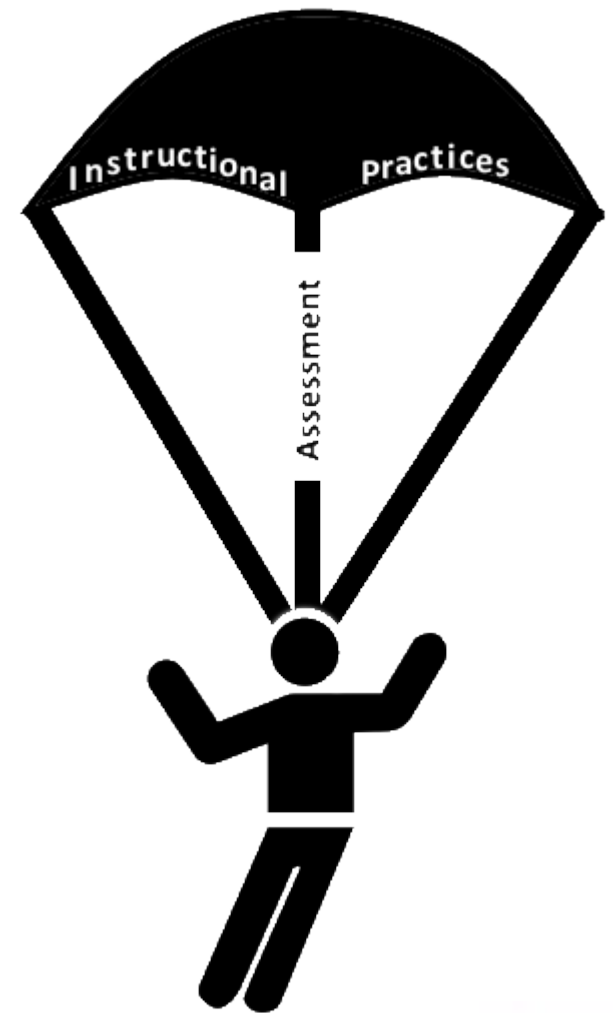


Classroom Culture

“A learning environment will happen, whether intentional or not...so why not go about building a positive environment, intentionally?”

~Rodrick Lucero

Assessment



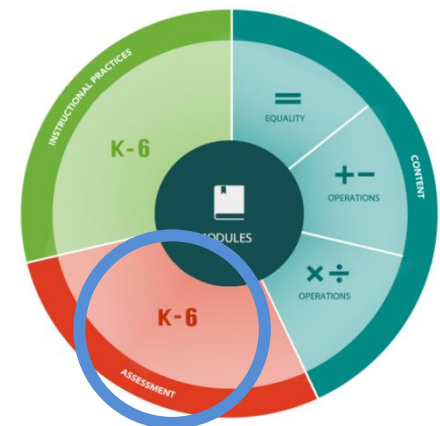
Assessment

Big Idea 2

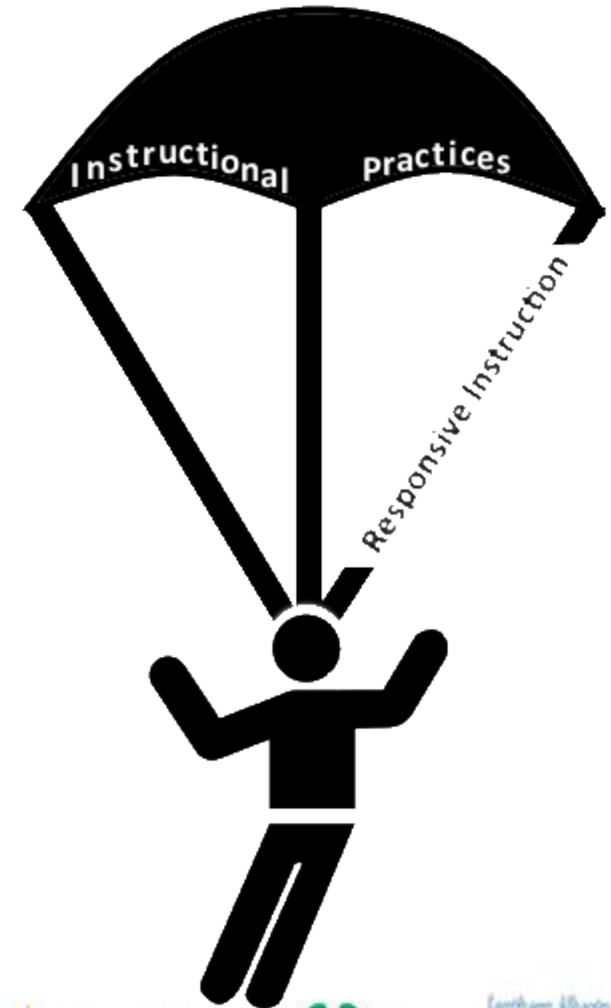
Teachers continuously use their professional judgement to create opportunities for observations, conversations and other forms of **assessment**.

Assessment

Assessment informs our Instructional Practice.



Responsive Instruction

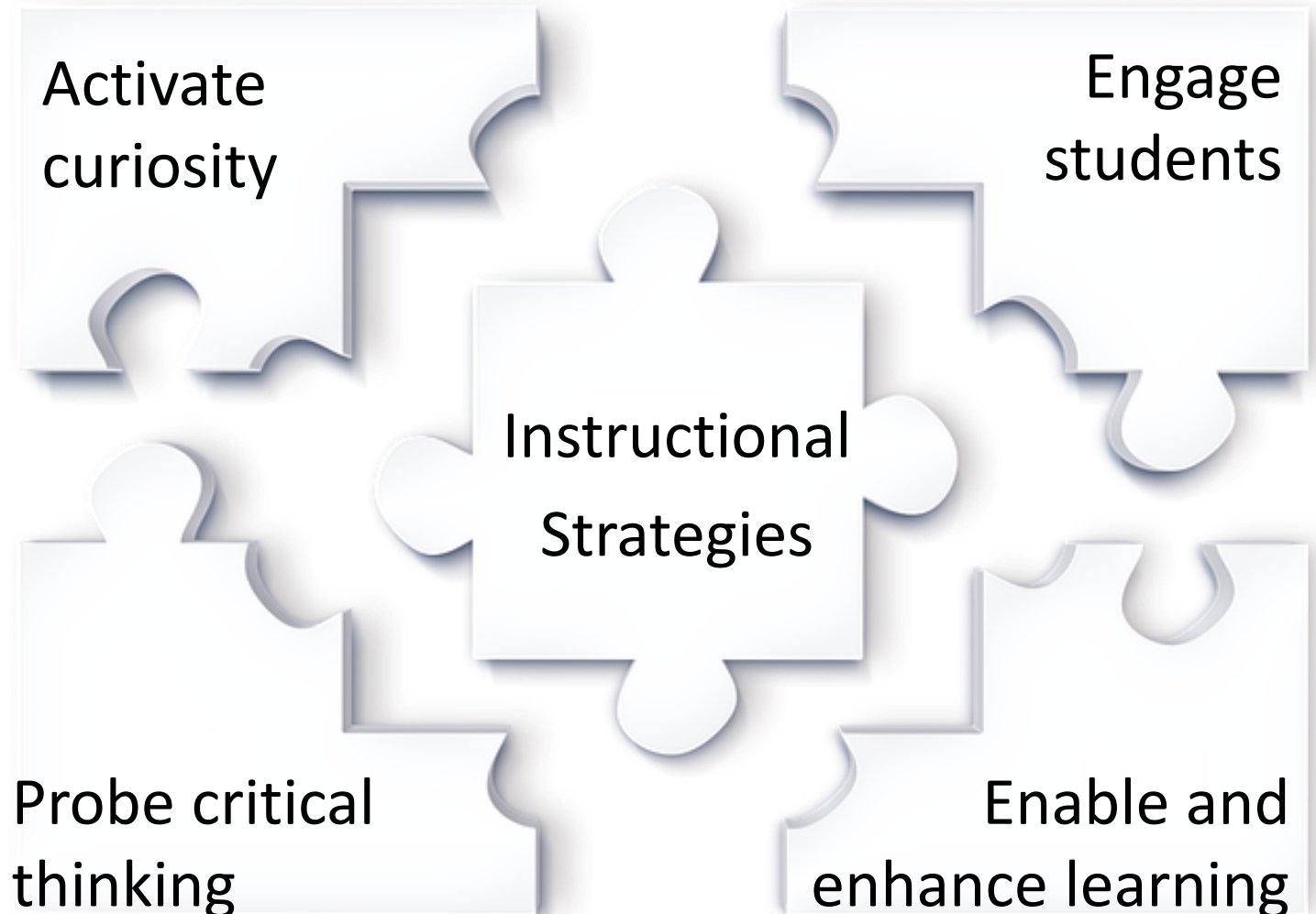


Responsive Instruction

Big Idea 3

Teachers continuously use their professional judgement to design and implement **responsive instruction**.

Responsive Instruction



Responsive Instruction – Instructional Strategies

How do you decide
HOW
you will teach a math outcome?



Responsive Instruction – Instructional Strategies

Formative assessment guides choices regarding

- ❖ Instructional strategies
- ❖ Resource selection
- ❖ Assessment

Responsive Instruction – Instructional Strategies

“Students who use memorization as their primary strategy are the lowest-achieving students in the world”

~Dr. Jo Boaler



Responsive Instruction – Instructional Strategies

Mathematical Processes

There are critical components that students must encounter in a mathematics program in order to achieve the goals of mathematics education and embrace lifelong learning in mathematics.

Students are expected to:

Communication [C]

- communicate in order to learn and express their understanding

Connections [CN]

- connect mathematical ideas to other concepts in mathematics, to everyday experiences and to other disciplines

Mental Mathematics and Estimation [ME]

- demonstrate fluency with mental mathematics and estimation

Problem Solving [PS]

- develop and apply new mathematical knowledge through problem solving

Reasoning [R]

- develop mathematical reasoning

Technology [T]

- select and use technologies as tools for learning and for solving problems

Visualization [V]

- develop visualization skills to assist in processing information, making connections and solving problems.

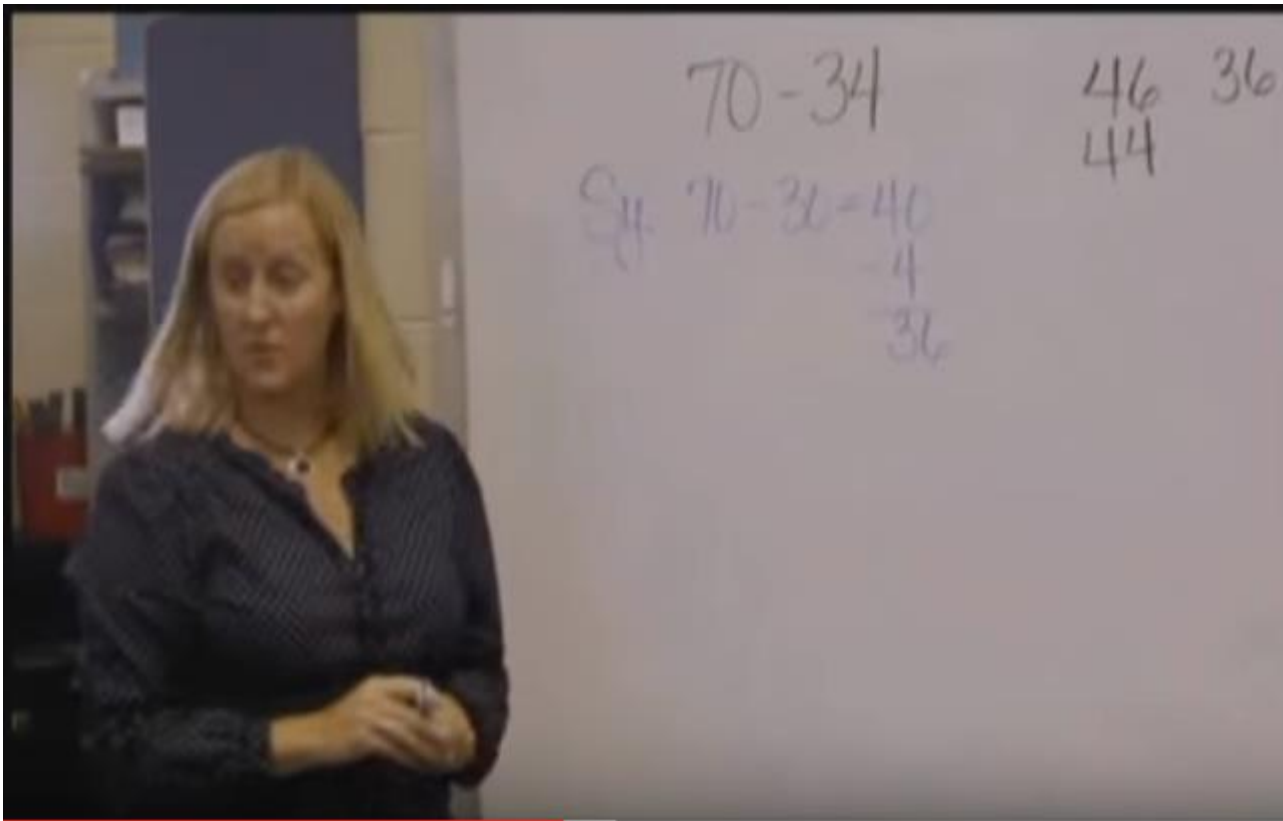
The program of studies incorporates these seven interrelated mathematical processes that are intended to permeate teaching and learning.

Responsive Instruction – Instructional Strategies

Grade 2 Number

9. Demonstrate an understanding of addition (limited to 1- and 2-digit numerals) with answers to 100 and the corresponding subtraction by:
 - using personal strategies for adding and subtracting with and without the support of manipulatives
 - creating and solving problems that involve addition and subtraction
 - using the commutative property of addition (the order in which numbers are added does not affect the sum)
 - using the associative property of addition (grouping a set of numbers in different ways does not affect the sum)
 - explaining that the order in which numbers are subtracted may affect the difference.
- [C, CN, ME, PS, R, V]

Responsive Instruction – Instructional Strategies



Responsive Instruction – Instructional Strategies

Mathematical strategies must be

- ❖ Effective
- ❖ Efficient
- ❖ Explainable

For that student

- ❖ At that point in time



Responsive Instruction – Instructional Strategies

Grade 2 Number

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Responsive Instruction – Instructional Strategies

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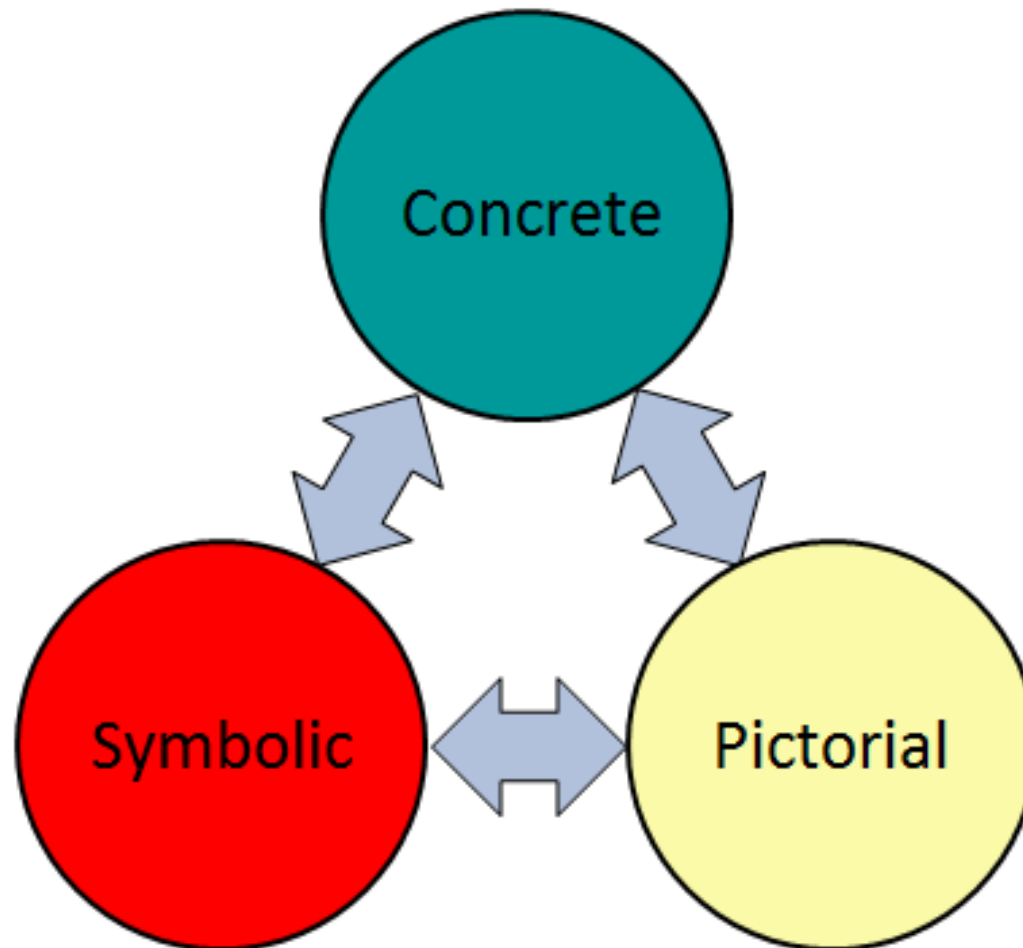


Responsive Instruction – Instructional Strategies

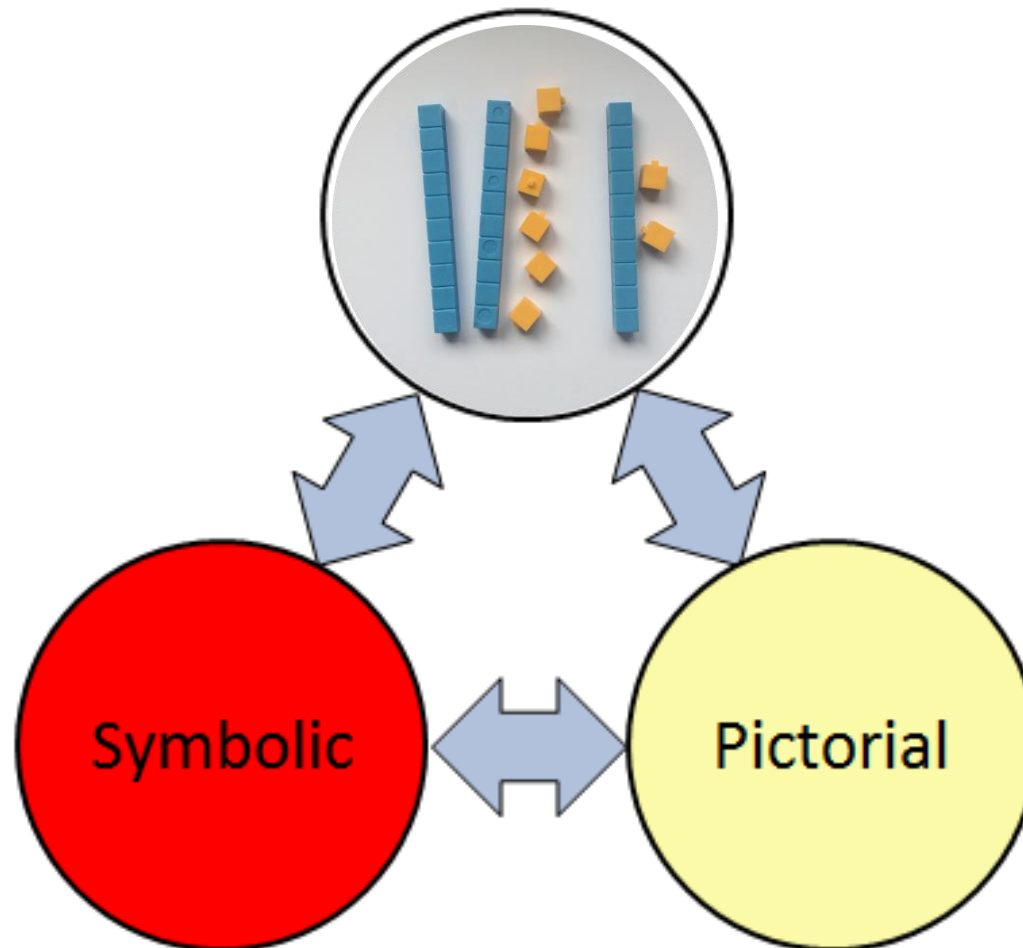
Grade 2 Number

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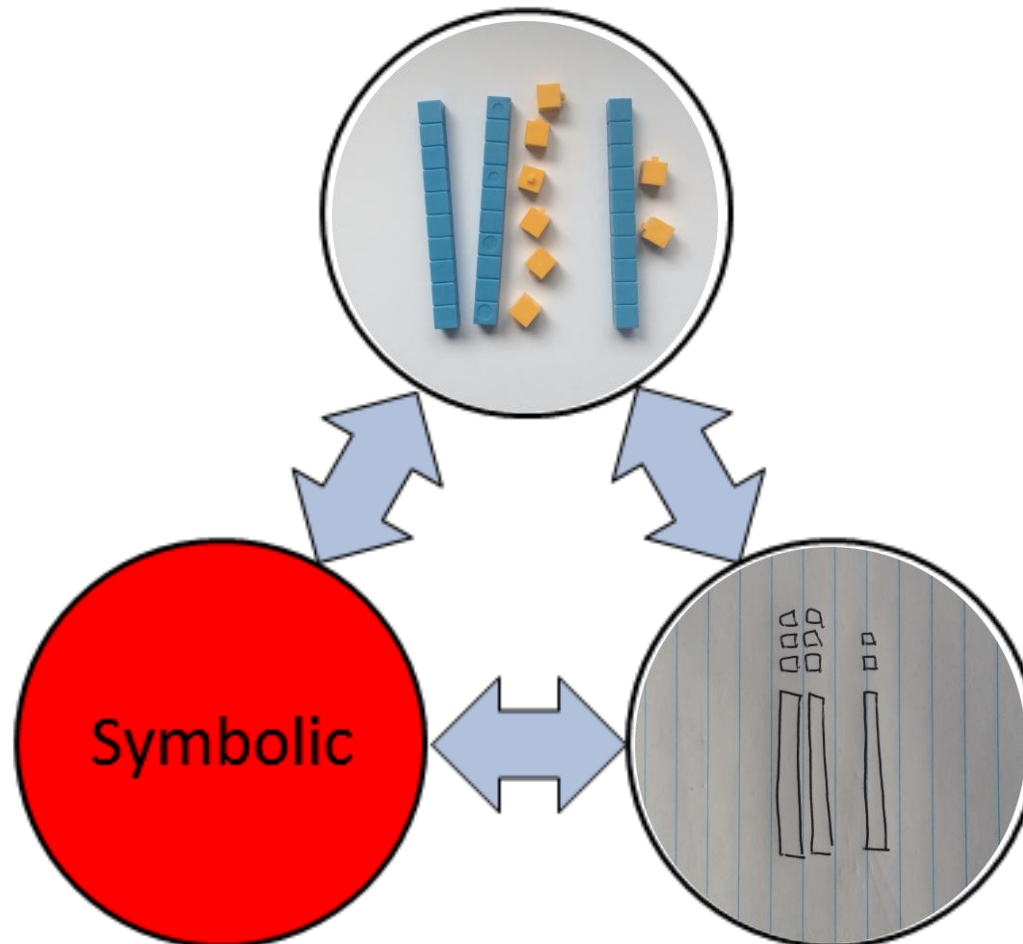
Responsive Instruction – Instructional Strategies



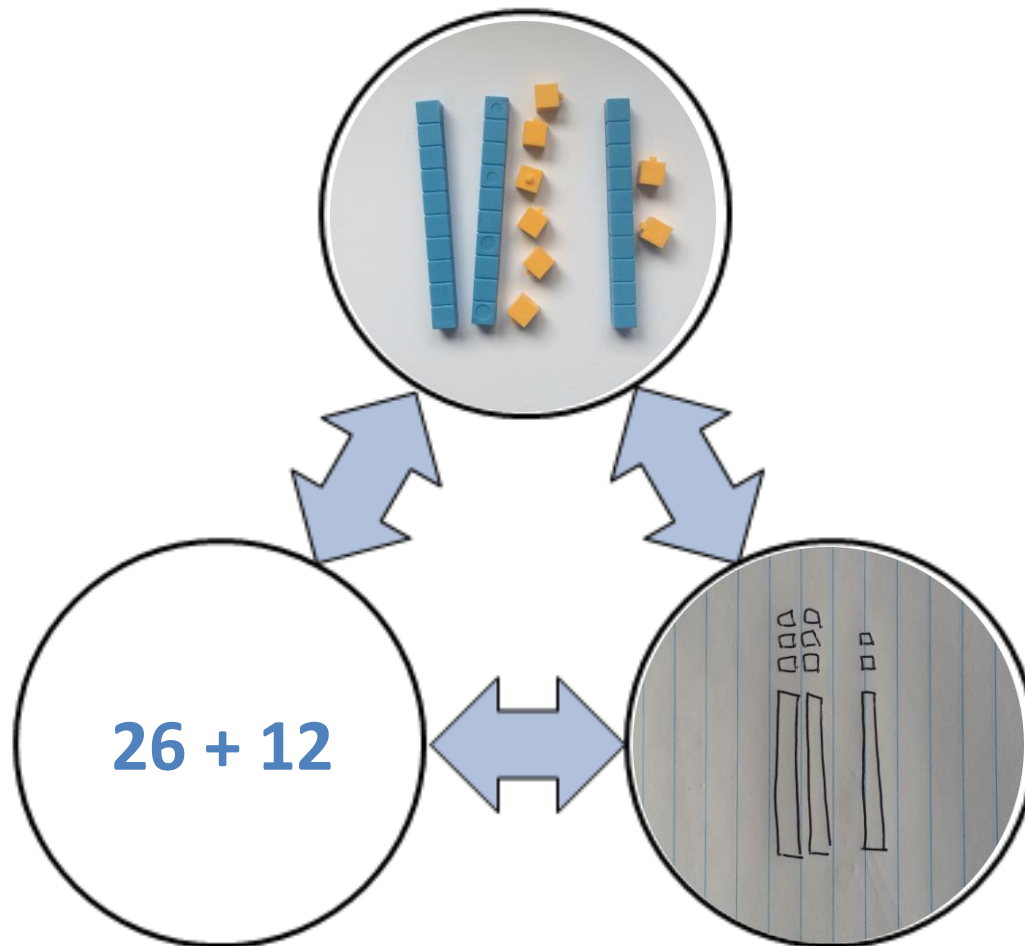
Responsive Instruction – Instructional Strategies



Responsive Instruction – Instructional Strategies



Responsive Instruction – Instructional Strategies



Responsive Instruction – Instructional Strategies

Grade 5 Number

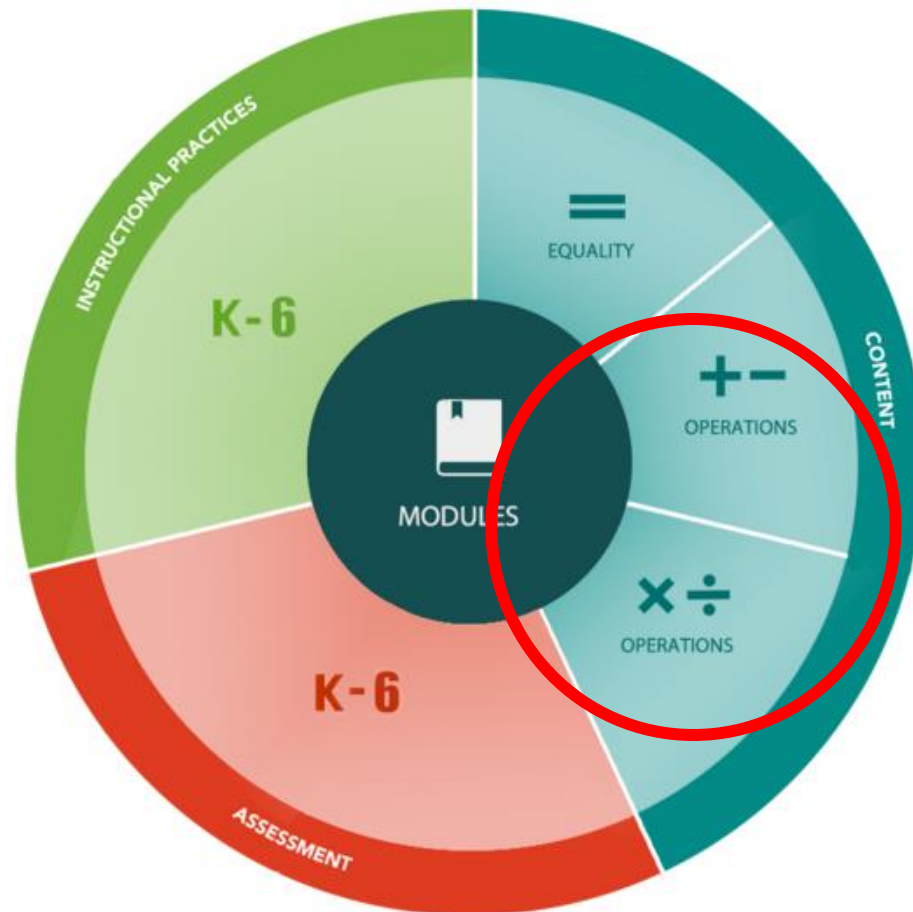
6. Demonstrate, with and without concrete materials, an understanding of division (3-digit by 1-digit), and interpret remainders to solve problems.
[C, CN, ME, PS, R, V]

Responsive Instruction – Instructional Strategies

❖ <Insert Division video - manips>

Responsive Instruction – Instructional Strategies

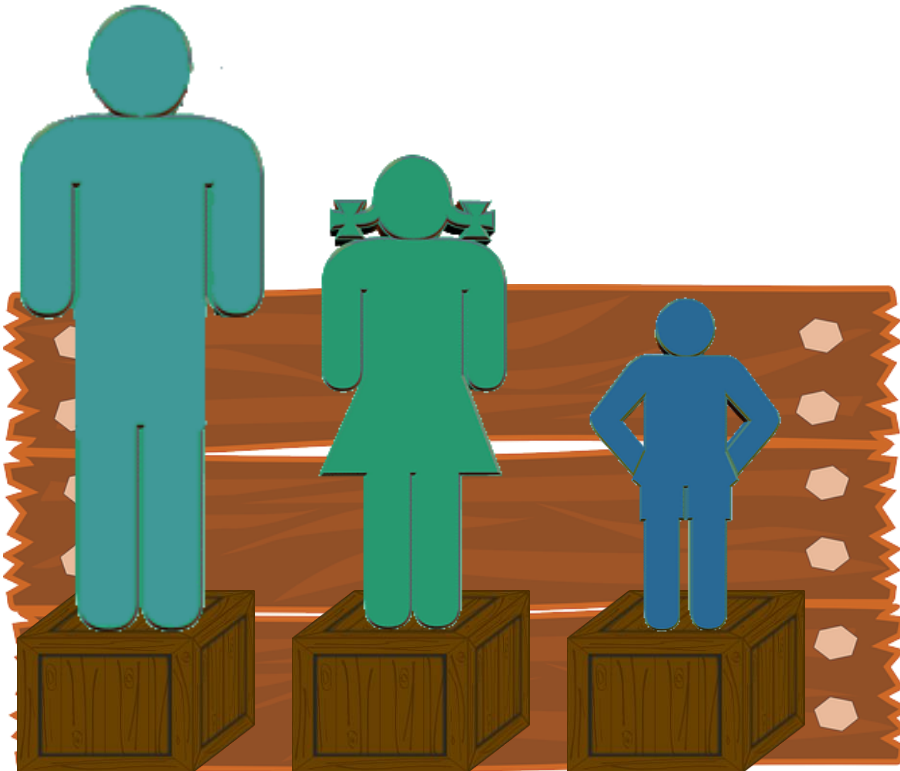
<http://learning.arpdc.ab.ca>





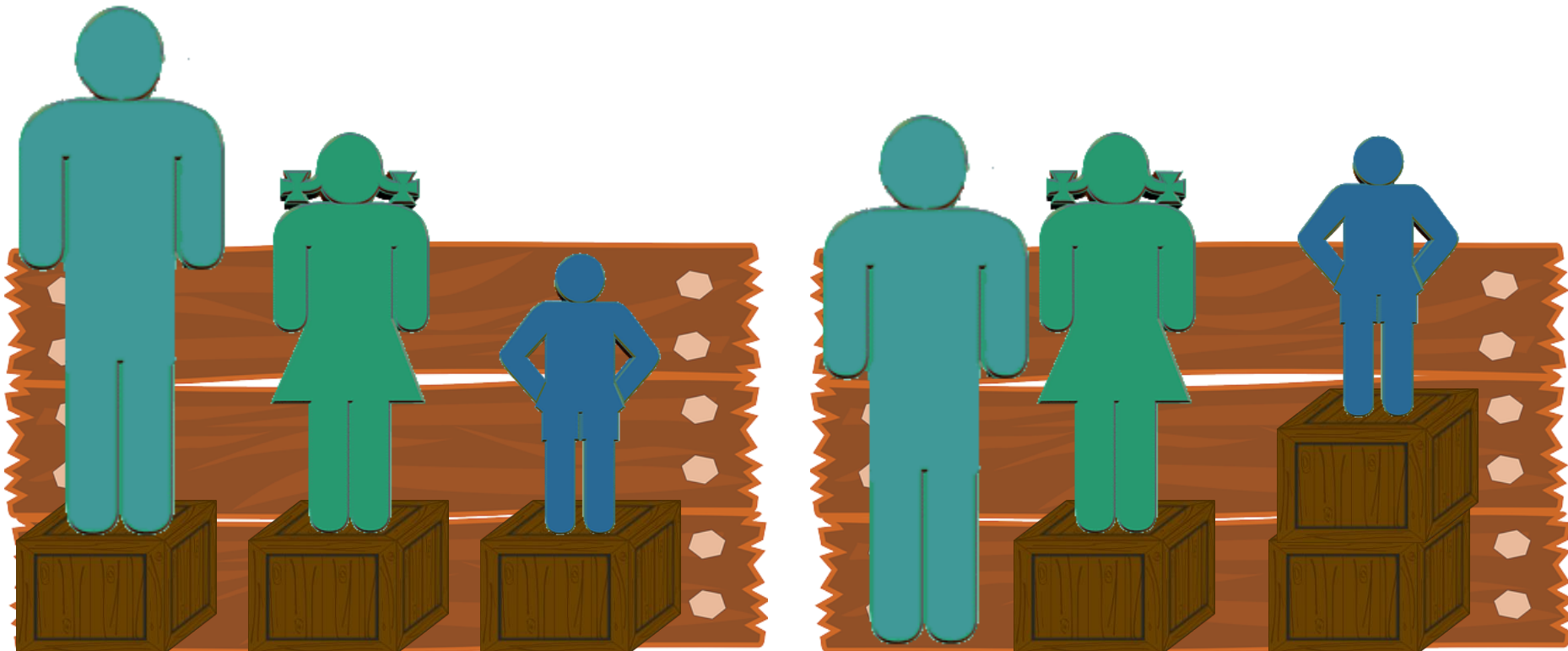
Responsive Instruction – Instructional Strategies

Differentiated Instruction



Responsive Instruction – Instructional Strategies

Differentiated Instruction



Responsive Instruction – Instructional Strategies

Grade 4 Number

11. Demonstrate an understanding of addition and subtraction of decimals (limited to hundredths) by:
- using personal strategies to determine sums and differences
 - estimating sums and differences
 - using mental mathematics strategies
- to solve problems.
[C, ME, PS, R, V]

Responsive Instruction – Instructional Strategies

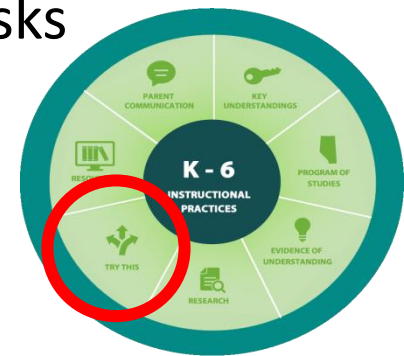
Open Ended Questions



Responsive Instruction – Instructional Strategies

Other Instructional Strategies

- ❖ Math Centres
- ❖ Understanding By Design
- ❖ Project-Based Learning
- ❖ Flipped Classroom
- ❖ Inquiry
- ❖ Games
- ❖ Cooperative Learning
- ❖ Group Work
- ❖ Journaling
- ❖ Problem-Solving
- ❖ Non Permanent Surfaces
- ❖ Performance Tasks

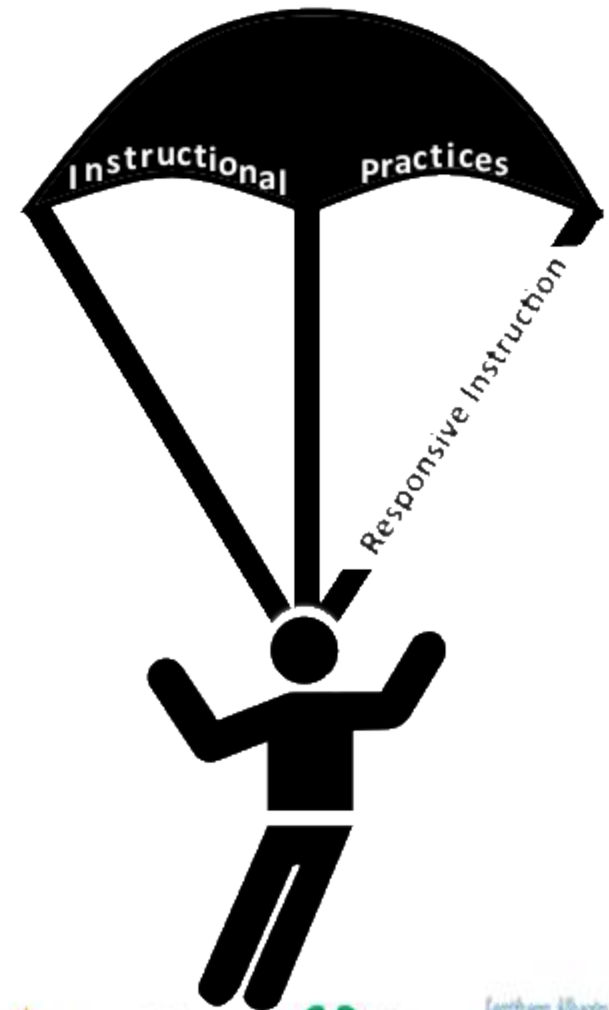


Responsive Instruction – Instructional Strategies

“Given the choice between two techniques, choose the one involving the learners in the most active participation”

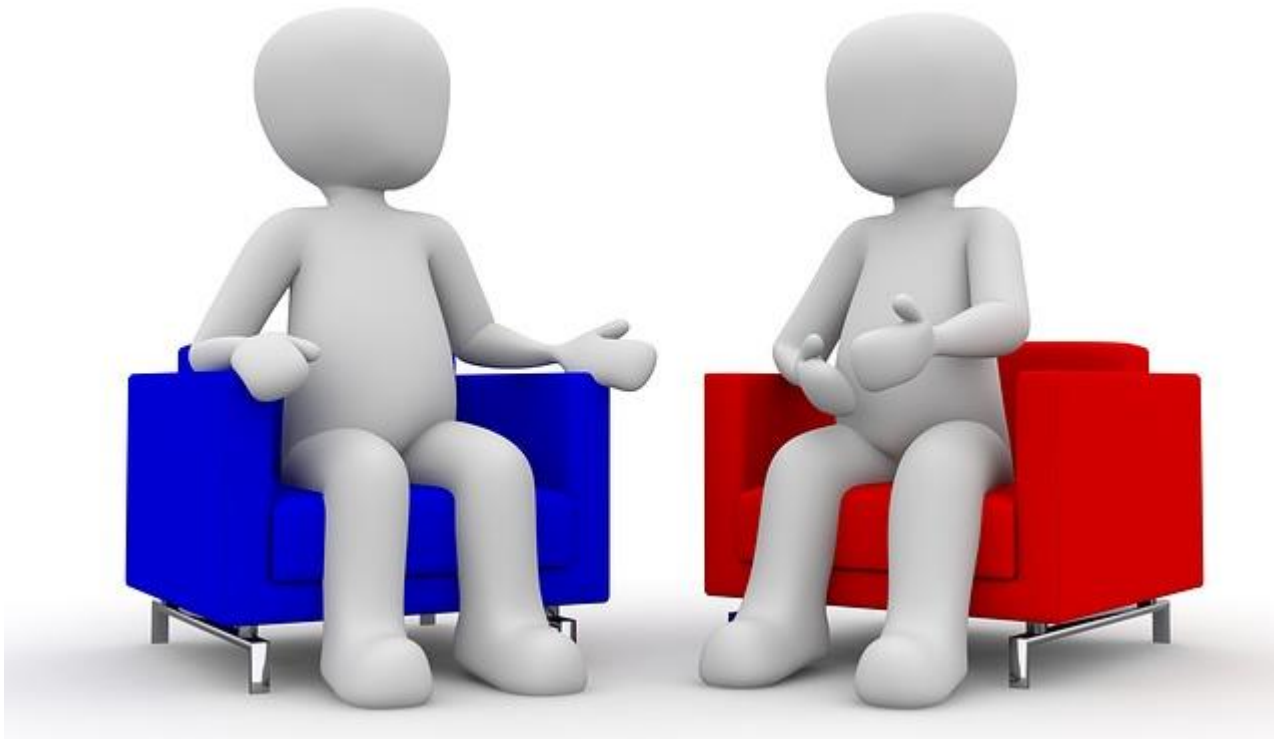
~Knowles, 1980, p. 240

Parent Communication



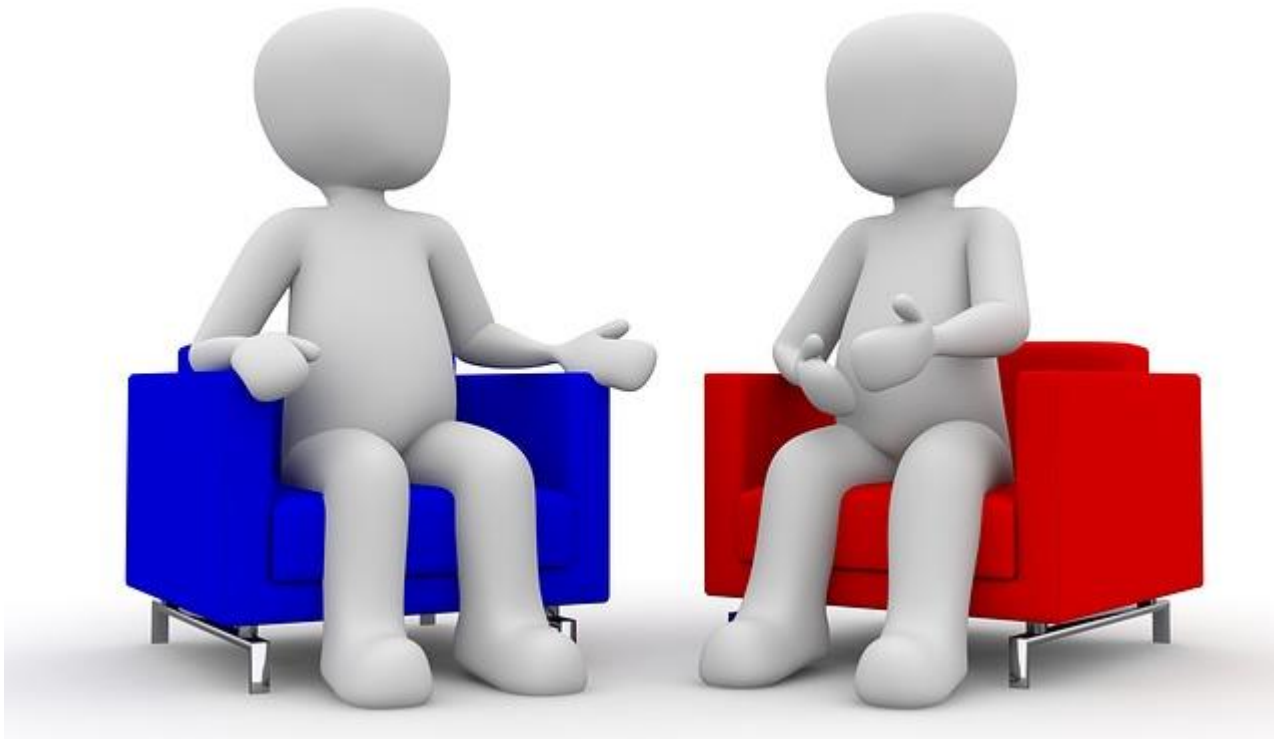
Responsive Instruction – Parent Communication

“Why did you teach the lesson that way?”



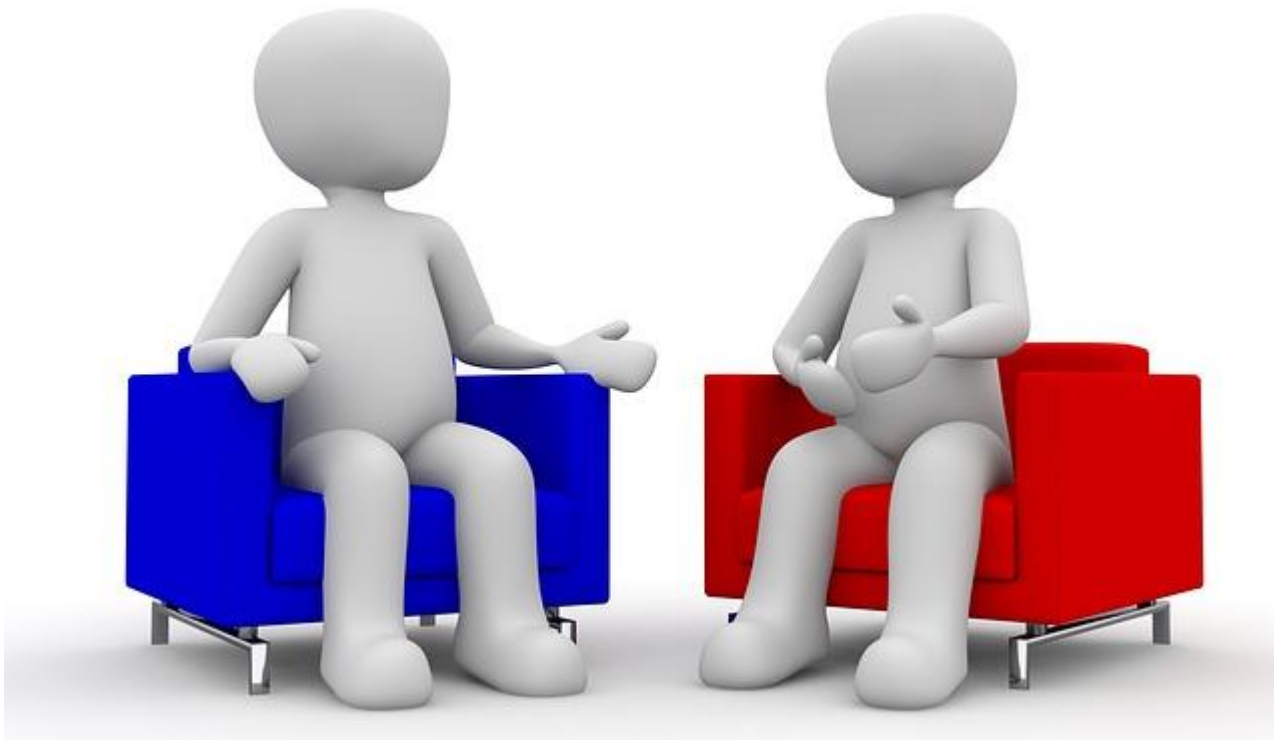
Responsive Instruction – Parent Communication

“It helps your child understand the math at the level they are at.”



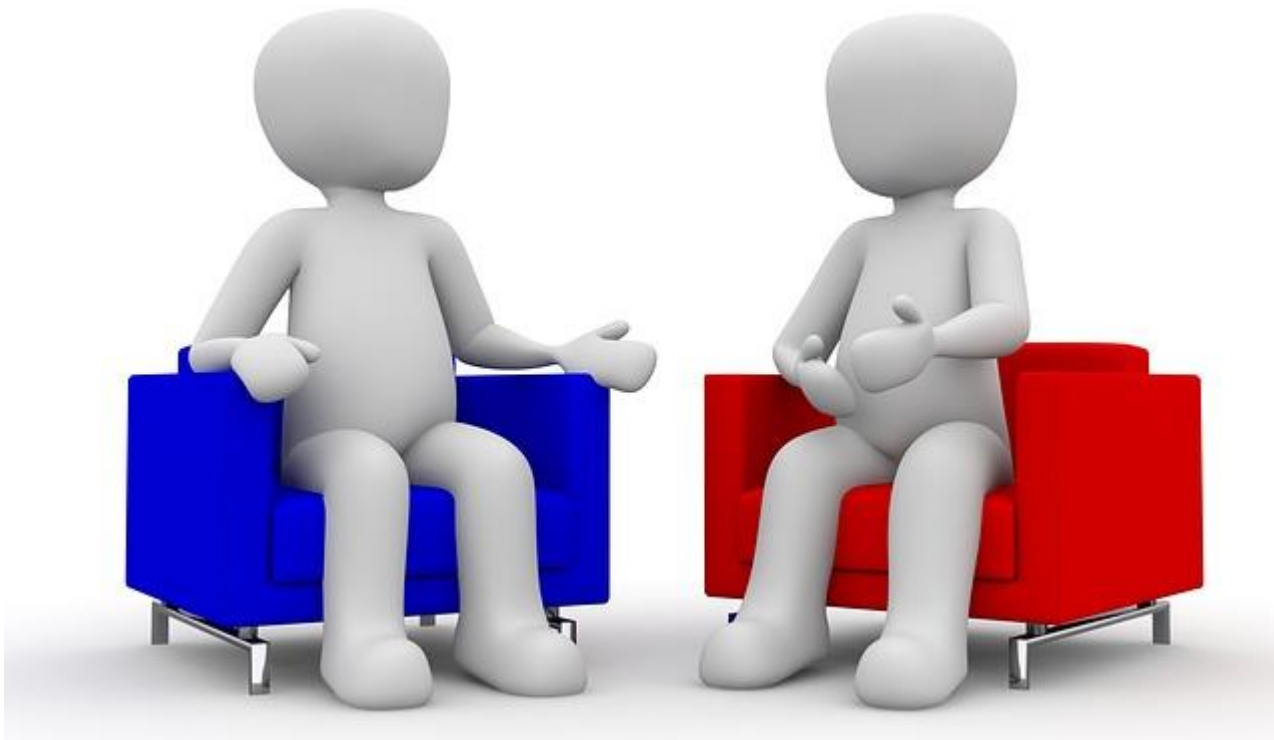
Responsive Instruction – Parent Communication

“It offers a nice progression from where they are at and where they need to get to.”



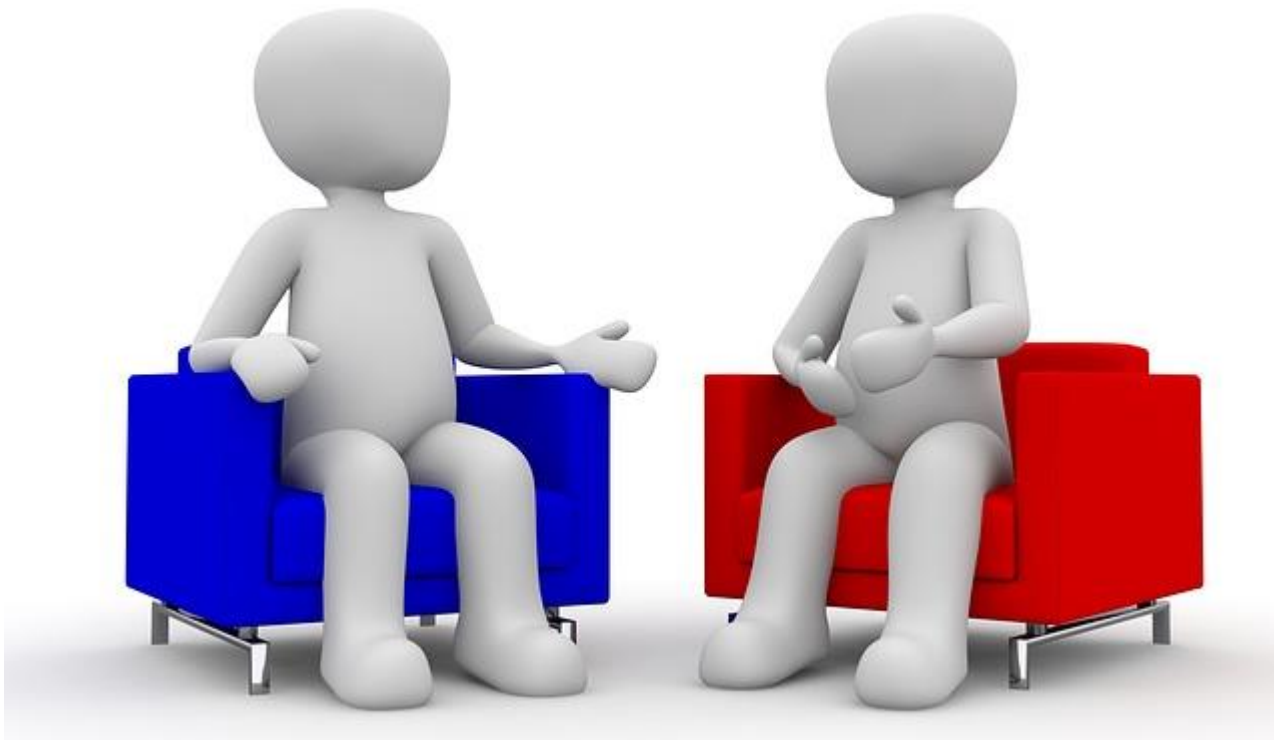
Responsive Instruction – Parent Communication

“This helps them connect to and understand the way you may have learned it in school.”

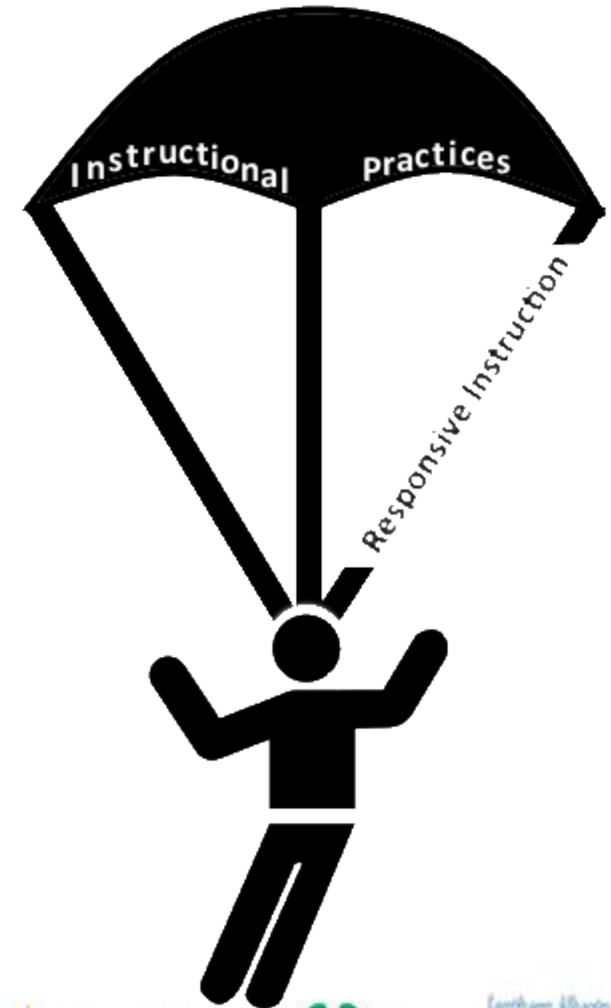


Responsive Instruction – Parent Communication

“They are active learners.”



Resource Selection



Responsive Instruction – Resource Selection

How do you decide
WHICH
resources you will use in your math class?



Responsive Instruction – Resource Selection

❖ Choosing Resources

- Appropriate reading level
- Because my school/school division makes me
- Easily modifiable
- I found it on Pinterest / Teachers Pay Teachers
- Matches the outcome
- Electronic and/or online version is available
- Supports the instructional strategy I have chosen
- Someone told me it was great
- Visually aesthetic



Responsive Instruction – Resource Selection



When is a resource a good resource?

What the resource should do for me, as a teacher:

Does this resource...
support the learning outcome(s) I want to focus on? ¹
deliberately and meaningfully incorporate at least one mathematical process?
help provide insight into the student's level of understanding?

What the resource could be for me, as a teacher:

Is this resource...
easily adaptable for differentiation purposes?
easily modifiable?
reusable/reproducible?
reasonably priced?

What the resource could be, for the students:

Is this resource...
at an appropriate reading level?
self-explanatory and/or user-friendly with some instruction?
supportive of the different learning styles?
available in electronic and/or online version?
respectful of all (culture, FNMI, etc.)?
visually aesthetic and appealing?

¹ "The overall goal must be to support the learning outcomes of the curriculum. The consideration of curriculum fit must be applied rigorously to all mediums of presentation." ([Evaluation and Selection of Learning Resources: A guide](#), 2008)



Responsive Instruction – Resource Selection

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Responsive Instruction – Resource Selection

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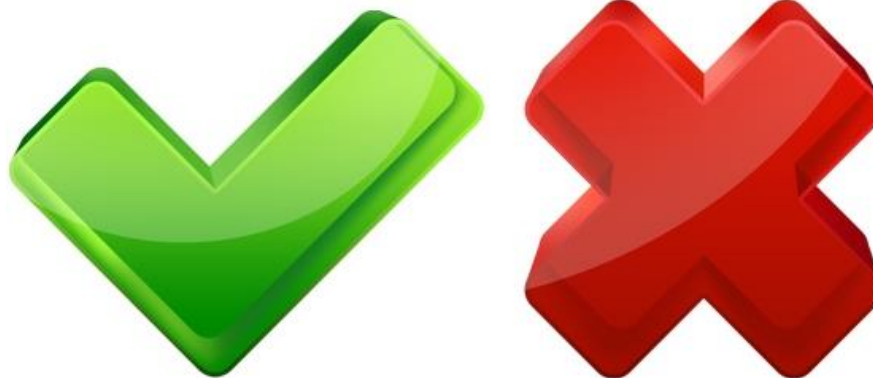
Responsive Instruction – Resource Selection

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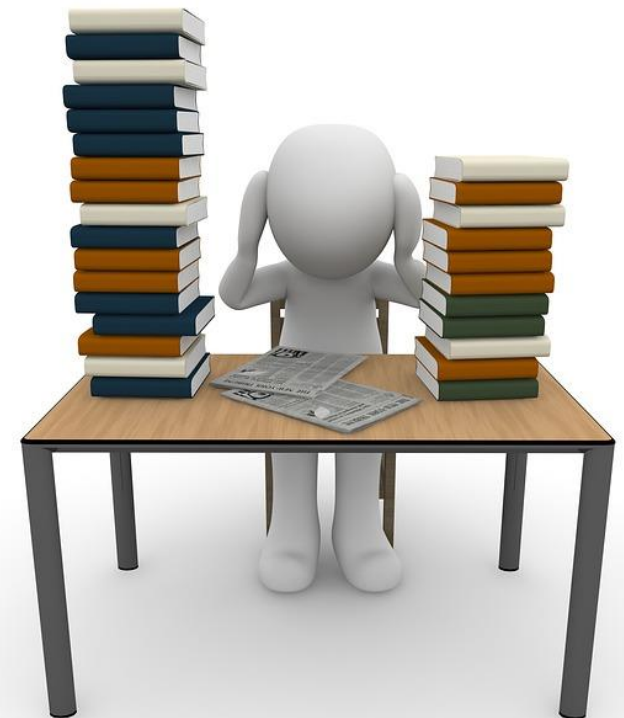
Responsive Instruction

You **must not** use
any resource that is not on Alberta Education's
"Authorized Resource List"



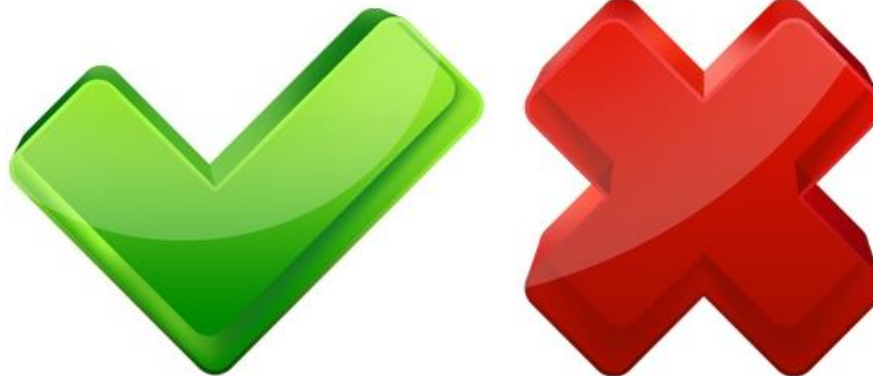
Responsive Instruction – Resource Selection

- ❖ Authorized Resources
- ❖ Additional Support Resources
- ❖ Required Resources



Responsive Instruction

You **must not** use
any resource that is not on Alberta Education's
"Authorized Resource List"



Responsive Instruction – Resource Selection

Where can teachers find resources?

- ❖ EMPL website
- ❖ AB ED's website
 - Authorized Resources list
 - Additional Support Resource list
- ❖ LearnAlberta.ca
- ❖ Other websites
- ❖ Library Bookshelf / Learning Commons
- ❖ Other teachers
- ❖ ...



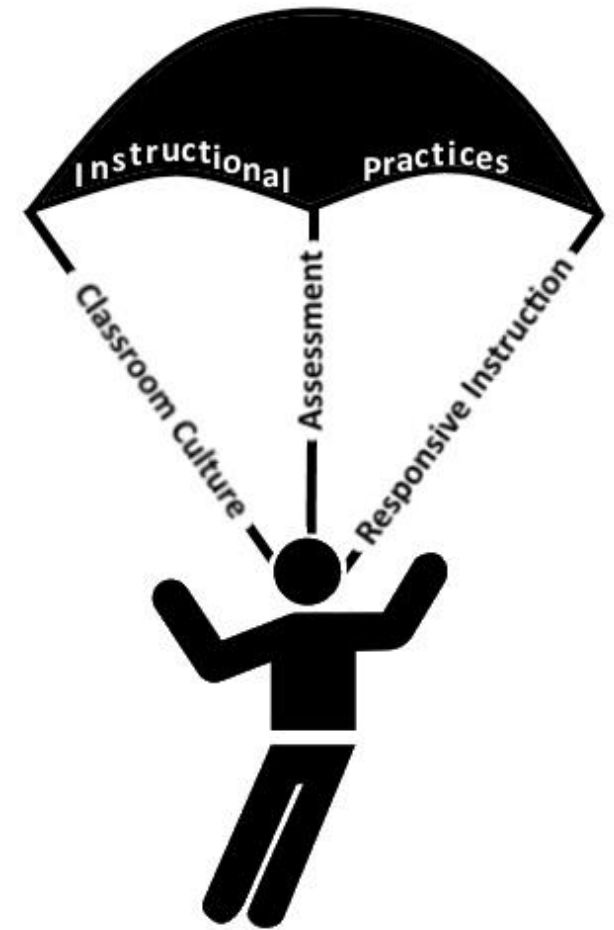
Responsive Instruction – Designing a lesson



Responsive Instruction – Designing a lesson

“Teaching practices will vary because each teaching situation is different and in constant change. Reasoned judgement must be used to determine whether the Teaching Quality Standard is being met in a given context.”

Key Messages



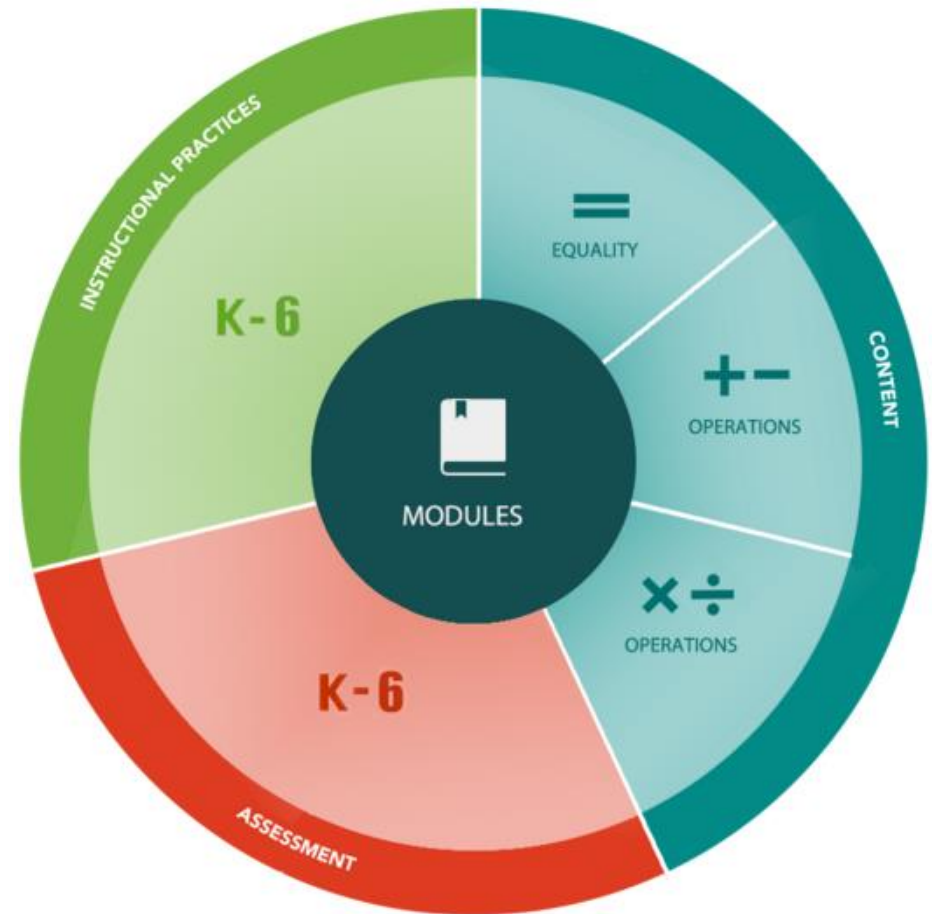
Key Messages

As outlined in the Teaching Quality Standard, **teachers are responsible for deciding how to best meet the needs of their students.**

Key Messages

The **selection of resources** for use in the classroom **is the responsibility of school jurisdictions and teachers** as per the School Act, and is not determined by the Program of Studies.

Instructional Practices Learning Guide







You are not logged in. (Log in)

Alberta Regional Consortia

HOME SUBJECT AREA FOCUS AREA ARPDC MAIN WEBSITE ALL COURSES

MORE ARPDC RESOURCES

FIRST NATIONS, METIS, INUIT

COMMUNITY OF PRACTICE

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LEARNALBERTA

ALBERTA EDUCATION :
LITERACY AND NUMERACY

EFORMATION (FRENCH)



Learning Portal

ALBERTA REGIONAL PROFESSIONAL DEVELOPMENT CONSORTIA

LOGIN

Username

Password

Remember username ☒

Create new account

Lost password?

To facilitate access to additional PD resources, educators are invited to explore the links available clicking on the image below



Welcome to the ARPDC Learning Portal

You will find a variety of resources, strategies and ideas all based in the Alberta Education context.

Courses that require a login are indicated in the top menu with an asterisk (*).

For steps on how to create an account on the ARPDC Learning Portal, [please click here](#).



Elementary Mathematics Professional Learning Apprentissage professionnel en mathématiques à l'élémentaire

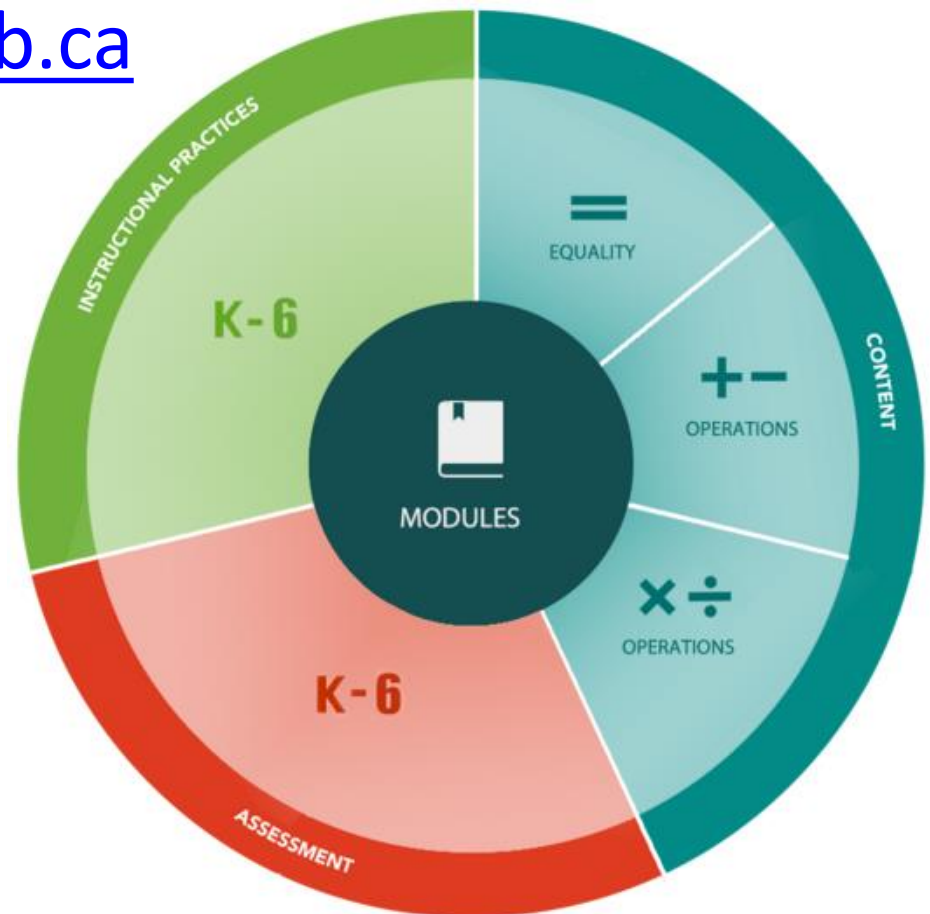
The aim of this series of instructional and collaborative professional learning experiences is to provide opportunities, ideas, and a venue for teachers to work collaboratively to enhance and further develop their Professional Capital (as described by Fullan and Hargreaves, cited in A Great School for All - ATA, 2012).

[Go to the EMPL Learning Guide to Find Resources](#)



EMPL Website Tour

<http://learning.arpdc.ab.ca>





ARPCD



www.crcpd.ab.ca



www.learning-network.org



www.carcpd.ab.ca



www.nrlc.net



www.cpfpp.ab.ca



www.sapdc.ca



www.erlc.ca