

Grades 4&5 Math Instructional Routines

Instructional routines are inclusive and responsive pedagogical practices that support the development of core and curricular competencies while learning mathematics content. The use of instructional routines as part of your designing for math learning supports the development of mathematical discourse and developing a math community. Specific mathematics curricular competencies that are developed during most math instructional routines include:

- Estimate reasonably
- Demonstrate and apply mental math strategies
- Visualize to explore mathematical concepts
- Use mathematical vocabulary and language to contribute to mathematical discussions
- Explain and justify mathematical ideas and decisions
- Communicate mathematical thinking in many ways
- Reflect on mathematical thinking

Prompts to support student thinking during math instructional routines:

- What do you notice? What do you wonder?
- How many? How do you see them?
- How do you know?
- What is a different way...?

Each routine could be about 10-15 minutes at the beginning of a lesson to recall and develop math knowledge, practice and use math vocabulary and language through discourse, explain thinking, and building an understanding that math can be creative and approached in many ways.

Routine	Description	Link	Content Areas
Splat	Routine that develops algebraic thinking and solving for an unknown. Students see total number of dots and then some dots are covered by a splat/s with remaining dots visible. Students figure out how many dots are under the splat/s.	https://stevewyborney.com/?s=splat	Algebra Multiplication and division facts Connections between multiplication, division, addition and subtraction
Solve Me Mobiles	Students use algebraic thinking, reasoning and deduction to solve for the unknown/s in visual mobiles.	https://solveme.edc.org/Mobiles.html	Algebra Application of operations
Visual Patterns	Students extend a visual growing pattern with pictures or materials, then generalize the pattern rule. Some students in grades 4&5 may also generalize the expression and solve for the 43 rd term.	https://www.visualpatterns.org	Algebra Patterning Application of operations
Number Talk Images	Students determine how many items are in an image and explain how they know and different ways of seeing the quantity.	http://ntimages.weebly.com/photos.html	Number and quantity Application of operations
Fraction Talk Images	Images (drawn or photographs) are shared and students determine an indicated fraction of the whole.	http://fractiontalks.com	Fractions
Estimation 180	Students investigate an image and estimate how many/how much/how big, etc and consider a reasonable range of estimates.	https://estimation180.com	Estimation Number and quantity

Estimation Clipboard	Students estimate the quantity or measure of different items through four sets of images.	https://stevevyborney.com/2018/04/the-estimation-clipboard/	Estimation Number and quantity
Same but/or/and Different	Students compare two images and discuss how they are the same and how they are different.	https://samedifferentimages.wordpress.com/about/ https://www.samebutdifferentmath.com	Images available for all content areas
WODB	Student compare four items/images and discuss how they are the same and also try to decide which one is the most unique and why.	https://wodb.ca https://talkingmathwithkids.com/wodb/	Geometry – polygons Number and quantity
Clothesline Math	Students order and compare numbers by placing tent cards along a clothesline or interactive number line.	https://clotheslinemath.com/numbers/ https://kristenacosta.com/clotheslines/	Fractions, Decimals, Time Place Value
Slow Reveal Graphs	Layers or components of a graph are slowly revealed as students make sense of the visual representation of data.	https://slowrevealgraphs.com	Data Graphing Comparing quantities and measurements
Open Middle	Open problems and tasks using the digits 0-9 Note: French student recording sheet available	https://www.openmiddle.com	Number concepts and operations Geometry Probability

Coast Metro Elementary Mathematics Project: Instructional Routines

<https://coastmetro.ca/elementary-math-project/instructional-routines/>