

## **Mathematics WASL 2005 Range-finding and Scoring Lessons Learned**

Each year committees composed of OSPI Mathematics Specialists, Washington State Educators, Pearson Educational Measurement Content Specialists, and Pearson Scoring Directors set the scoring rubrics for mathematics WASL items that are pilot items or operational for the first time. As a result of close inspection of student work, committee members have suggested that OSPI Mathematics Assessment share the members' observations with interested members of the educational community in the state of Washington.

### **GENERAL**

- Students could improve their scores by paying careful attention to the directions in the item prompt. If the directions say to use information from two graphs, using information from only one graph does not earn full credit.
- Students need to label any picture or diagram when responding to the direction "Show your work using words, numbers, and/or pictures (diagrams in grade 10)."
- Students should use consistent numerical and pictorial representations in their responses. If 14 fish are used in the supporting work, and the child draws 13 fish in a diagram, then that forces scorers to choose which one is the answer. The scorer will not choose between conflicting answers.
- If a correct answer is given in the work, but a different answer also appears somewhere else in the workspace, credit may not be awarded for the correct answer. The scorer will not choose between conflicting answers.
- When a student writes one answer in the work space and a different answer in the answer space, the answer in the answer space is scored.
- Students do not need to do all three: words, numbers, and pictures; Students can write themselves out of a point by including conflicting information in the text and pictures.
- When a student uses "guess-and-check" as a solution strategy, the student must show more than one guess or must say they are using guess-and-check and found the answer on the first guess.
- In some item responses student may receive full credit even with a computation error, but the scorer has to be able to see the error on the student paper, not just infer that the error was a computation error.
- Errors that result in misplacement of the decimal position are scored as conceptual errors, not computational errors.

### **NUMBER SENSE**

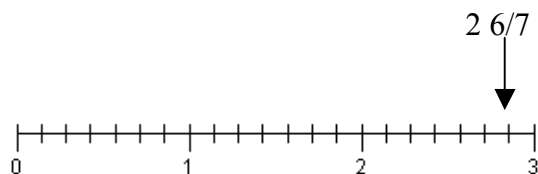
- In Number Sense responses, students have difficulty with
  - applying percents and interpreting the meaning of the answer
  - finding and interpreting remainder in context.
- The student should use the mathematical terms least or greatest when comparing values of numbers not smallest and biggest. Small and big are size not value.
- When a student uses "skip-counting" in a response, the skip-counting needs to be labeled
- In classroom settings, use the phrase "Show how you used estimation to get your answer." This reminds students to make their thinking more visible.
- In estimation items, NSO5, exact calculations do not receive full credit.

## MEASUREMENT

- In Measurement responses, students have difficulty with
  - converting liquid volumes (capacity) measures
  - differentiating among perimeter, area and volume
  - using appropriate labels
  - writing the correct label for 200 square feet as 200 ft<sup>2</sup> not 200<sup>2</sup> ft or 200 <sup>2</sup>ft
  - reading schedules (bus, train, training, school) and calculating elapsed time.
- Labels are a scoring concern for Measurement and Communication. Responses may or may not be scored for labels in other strands.
- When an answer on the answer line is not labeled but the answer is labeled within the student's work, credit can be given.

## GEOMETRIC SENSE

- In Geometric Sense responses, students have difficulty with
  - interpreting and plotting ordered pairs: (2,3) is not (2,0) (0,3)
  - drawing straight lines at third grade
  - drawing closed figures at third and fourth grade.
- Scores would improve in transformation items if students located and plotted the vertices first and then connected the vertices.
- When representing a number between n and n+1 it must be written as the entire number, not just the fractional part. In the example, 20/7 or 2 6/7, not 6/7.



$$\frac{20}{7} = 2 \frac{6}{7} \text{ is correct.}$$

## PROBABILITY AND STATISTICS

- In Probability and Statistics responses, students have difficulty with
  - determining sample space (outcomes)
  - determining theoretical probability
  - interpreting the effect of additional data on a given mean, median, and mode
  - interpreting box-and-whisker plots.
- Students do not seem to know that mean, median and mode are different measures of the center of a data set. Note: The term 'central tendency' is not used on the WASL.
- Young students confuse mode with most (greatest number).

## ALGEBRAIC SENSE

- In Algebra Sense responses, students have difficulty with
  - solving equations by using run-on equations in the supporting work
  - distinguishing between equations and expressions.
    - $5 = 3 + \_$  is an equation
    - $2x + 1 = 15x - 9$  is an equation

- An expression does not contain an equal sign but does contain one or more terms. For example, either side of the equations above would be expressions.

### **SOLVES PROBLEMS/REASONS LOGICALLY**

- In Solves Problems/Reasons Logically responses, students have difficulty with
  - supporting answers using evidence from text, charts, tables, etc.
  - identifying information from the prompt to solve the problem.
- The expression “not needed” will be used sparingly in grades 3, 4, and 5 for SRO1 **only**.
- The expression “not needed” will be used sparingly in grades 6-10 in all SR items.

### **COMMUNICATES UNDERSTANDING**

- In Communicates Understanding responses, students have difficulty with
  - writing mathematical question that can be answered using information from charts, tables, or graphs.
  - identifying the components of a survey: question, collection method and sample population. For example: If you want to know what 5<sup>th</sup> graders want, survey 5<sup>th</sup> graders, not adults at a mall.
- Students need to use mathematical terms correctly, i.e. vertices of a triangle, not corners.

Making Connections – See Individual Content Strands.