Deconstructing Standards & Vertical Alignment

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Why Deconstruct Standards?

- Enhances student understanding and mastery
- Enables teachers to interpret standards the same way

Steps to Deconstructing Complex Standards

- Determine ultimate learning target type:
  - Knowledge
  - Reasoning
  - Skill
  - Product
- Identify underpinning learning targets

Standard/Benchmark:

4.01 Use linear functions or inequalities to model and solve problems; justify results
a.) Solve using tables, graphs, and algebraic properties

1. What is/are the learning target(s)?
2. Why do you say that?
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Algebra

Standard Benchmark:
4.01 Use linear functions or inequalities to model and solve problems: justify results.

a.) Solve using tables, graphs, and algebraic properties.

Learning Targets:
Knowledge Reasoning Skill Product

What are the knowledge, reasoning, skill, or product targets underpinning the standard or benchmark?

Knowledge
- Vocabulary: domain, range, coordinate, relation, function, vertical line test, linear equations, x and y-intercepts
- Difference/relationship between domain and range
- Knowing when to use solid or dashed line

Reasoning
- Linear functions can be used to predict trends
- Interpret and create graphs
- Convert words to functions and inequalities
- Identify characteristics of functions
- Interpret tables and graphs
- Solve using properties of equations

Skill
- Successfully model and solve problems by using linear functions and inequalities
- Create tables and graphs to model linear inequalities

Product
- Interpreting and creating graphs
- Converting words to functions and inequalities
- Identifying characteristics of functions
- Interpreting tables and graphs
- Solving using properties of equations

Types of Assessments for Mastery
- Selected Response
- Extended Written Response
- Performance Assessment
- Personal Communication

Target-Method Match Chart

<table>
<thead>
<tr>
<th>Knowledge (Scenario 1)</th>
<th>Reasoning (Scenario 2)</th>
<th>Skill (Scenario 3)</th>
<th>Product (Scenario 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selected Response</td>
<td>Extended Written Response</td>
<td>Performance Assessment</td>
<td>Personal Communication</td>
</tr>
<tr>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>Y</td>
<td>Y</td>
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<td>Y</td>
<td>Y</td>
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<tr>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

Adapted from Classroom Assessment for Student Learning
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Target to Be Assessed

Selected Response & Short Answer

Extended Written Response

Performance Assessment

Personal Communication

Knowledge Mastery

Y

N

Too time consuming

Not time consuming

Reasoning Proficiency

Y

For some reasoning patterns

Y

Skills

N

N

Y

For oral communication proficiency

Ability to Create Products

N

N

Y

Student-Friendly Language

• Identify an important learning target, or one students have difficulty learning.

• Identify word(s) needing clarification.

• Define the word(s). Use a dictionary as a starting point.

• Rewrite the definition as an “I can” statement, in terms that your students will understand.

Interpret constants and coefficients in the context of the problem.
(Algebra I Objective 4.01b)

• Possible words to be defined: Interpret, Context

  – Definition (interpret): to explain or tell the meaning of; present in understandable terms

  – Definition (context): circumstances which determine, specify, or clarify meaning

Student Assessment Chart

<table>
<thead>
<tr>
<th>Learning Target/Standard</th>
<th>Ready for Assessment/Test</th>
<th>Need More Practice</th>
<th>Don’t Get It</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpret and create graphs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify characteristics of functions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solve properties of equations</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Create graph from data</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convert words to functions and inequalities</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify domain, range, relations, function using different representations</td>
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</tbody>
</table>
**Benefits to Students**

- Students who could identify their learning scored 27 percentile points higher than those who could not. (Marzano, 2005)

- A student's success on a standardized math test: 40% is dependent upon mathematics literacy. (Jacobs, 2004)

**Break**

Refreshments are in the pre-function area. Please return promptly at 10:30.

**Vertical Alignment**

- Are there topics or concepts being addressed the same way in more than one course?

- Are teachers spending a lot of time on review or re-teaching activities related to certain topics or concepts?

- After topics or concepts are introduced, how should they be addressed in subsequent courses to deepen students’ understanding?
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Vertical Alignment

- Align content in terms of what topics and concepts are covered and where
- Can be used to address gaps, overlaps, and omissions
- Is a process not an event

In addition to content alignment, consider:
- The vocabulary / terminology used for a particular concept in different courses
- The way in which a particular concept is defined in different courses
- The notation that is used in different courses
- Solution methods used for a particular problem at different grade levels
- Technology

Starting the Process

Group Activity

Share and Discuss

Summary and Conclusion

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