Formative Assessment Tasks

Today's slide deck is available at http://www.mathteachersinaction.org/

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ICTM South, 2020
Outcomes:

Define Formative Tasks

Define Purpose and Process of Formative Tasks

Locate resources to use or adapt formative tasks
First, Math

Solve.

\[
\frac{5}{6} \times \frac{9}{10} =
\]

Source: IAR Practice Test Grade 5, Unit 2, https://il.testnav.com/client/index.html#login?username=LGN625334188&password=L8EYSQ6B
Second, how would students solve? What answers would they get?

Solve.

\[
\frac{5}{6} \times \frac{9}{10} =
\]

Source: IAR Practice Test Grade 5, Unit 2, https://il.testnav.com/client/index.html#login?username=LGN625334188&password=L8EYSQ6B
Third, how would students get these answers? Are they the same answers you had?

Source: IAR Practice Test Grade 5, Unit 2, https://il.testnav.com/client/index.html#login?username=LGN625334188&password=L8EYSQ6B
If a student picked D, what does this tell you?

Source: IAR Practice Test Grade 5, Unit 2, https://il.testnav.com/client/index.html#login?username=LGN625334188&password=L8EYSQ6B
If a student answered this, what information would you receive?

Solve.

\[
\frac{5}{6} \times \frac{9}{10} =
\]

<table>
<thead>
<tr>
<th>Statement</th>
<th>Yes or No</th>
<th>Explain your thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. (\frac{14}{16})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. (\frac{15}{30})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. (\frac{45}{60})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. (\frac{50}{54})</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
If every student in your class answered this, what information would you receive?

Solve.

\[
\frac{5}{6} \times \frac{9}{10} =
\]

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<td>D. ( \frac{50}{54} )</td>
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<td></td>
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What is a formative task?

• Targeted diagnostic assessment designed to elicit common misunderstandings.

• Our tasks include:
  • a multiple choice or multiple select item, with at least one correct response and distractors designed to elicit specific misunderstandings.
  • An explanation for each answer and distractor for students to explain their reasoning for choosing a selected response.

Adapted from Uncovering Student Thinking in Mathematics Series, Corwin Press
Why Do Formative Assessments?

• Provides immediate information about individual student’s understanding and misunderstanding.
• Provides collective feedback about understanding in the class.
• Informs instructional actions and individual intervention needs.
• Multiple formative assessments allow us to pinpoint students’ difficulties.
When to administer formative assessment

- **Before instruction**: assess prerequisite knowledge, determine interventions
- **During instruction**: assess progress and plan next steps
- **After instruction**: access proficiency

Whole Child  |  Whole School  |  Whole Community
### Does this student have understanding?

<table>
<thead>
<tr>
<th>Expression</th>
<th>Equivalent to 6 + 12x?</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>A) 3(2 + 4x)</td>
<td>YES</td>
<td>A+</td>
</tr>
<tr>
<td>B) 3(2 + 6x) + 2x</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>C) 5(1 + 2x) + 1 + 2x</td>
<td>YES</td>
<td></td>
</tr>
</tbody>
</table>
Does this student have understanding?

Is the expression equivalent to $6 + 12x$?

<table>
<thead>
<tr>
<th>Circle Yes or No</th>
</tr>
</thead>
<tbody>
<tr>
<td>A) $3(2 + 4x)$</td>
</tr>
</tbody>
</table>

Equivalent to $6 + 12x$? [YES] [NO]
Does this student have understanding?

<table>
<thead>
<tr>
<th>Circle Yes or No</th>
<th>Explain/Show Your Thinking:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A) 3(2 + 4x)</td>
<td>2 + 4 = 6 \times 3 = 18 = 6 + 12</td>
</tr>
</tbody>
</table>

Equivalent to 6 + 12x? **YES** NO
Does this student have understanding?

B) \[3(2 + 6x) + 2x\]

Equivalent to \(6 + 12x\)?

YES  NO
Does this student have understanding?

B) \[3(2 + 6x) + 2x\]

Equivalent to \(6 + 12x\)? \(\text{YES/NO}\)

\[2 + 6 = 8 \times 3 = 24\]
\[24 + 2 = 26\]

\(\text{not equal to 6 + 12}\)
Does this student have understanding?

C) $5(1+2x) + 1 + 2x$

Equivalent to $6 + 12x$? **YES** NO
**Does this student have understanding?**

<table>
<thead>
<tr>
<th>C) $5(1+2x) + 1 + 2x$</th>
<th>$1+2=3 \times 5=16+1+72=18=40 \neq 6+12$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equivalent to $6 + 12x$?</td>
<td><strong>YES</strong></td>
</tr>
</tbody>
</table>

**Student Needs Individual Intervention because he/she has a consistent misunderstanding**
Tasks are DIAGNOSTIC unless you ACT on them.
Ideas to Act

• Sort student work for individual and group understandings and misunderstandings.

• Create re-engagement tasks where pairs or groups of students look at common mistakes and explain how to fix it.

• Have students fix their own paper and justify any changes they make.
The goal of formative tasks is to learn students’ understandings and misunderstandings, it is not to apply a score or a grade.
Create your own

Use past data to discover where students have inconsistent performance

Find multiple choice or multiple select questions - IAR/PARCC items, SAT questions, items from local summative assessments

Use a template or example
Resources and Links

• Formative Assessment Tasks
  http://www.mathteachersinaction.org/formative-assessment-probes.html

• ILMathCom Formative Assessment Probes with Cheryl Tobey (Part 1 and 2)
  http://www.mathteachersinaction.org/ilmathcom.html

• Shared Materials from Cheryl Tobey
  https://drive.google.com/drive/folders/1OY1a36BsD8WSgr3z30g4uu7lbZSAqr8l
Need support with any of the materials included here? Reach out to one of our Math Content Specialists!

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