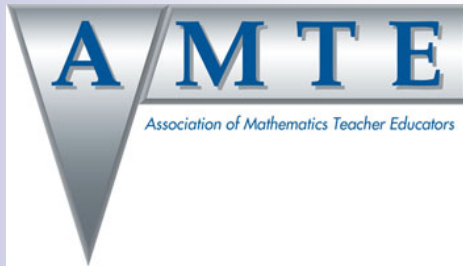# JUMP START
Formative Assessment

National Council of Supervisors of Mathematics

"Overview: JUMP START

Formative Assessment"

JUMP START

Formative Assessment
Our Position

The National Council of Supervisors of Mathematics (NCSM) and the Association of Mathematics Teacher Educators (AMTE) affirm the centrality of research-based, mathematically focused, formative assessment—a key element in the national effort to improve mathematics proficiency. Formative assessment needs to be intentionally and systematically integrated into classroom instruction at every grade level. This requires adequate attention in the preparation of new teachers of mathematics and in the continuing education and professional development of current teachers.

PowerPoint Series: Table of Contents

This overview contains

- Purpose, goals, and structure of the series
- Background information about formative assessment
- A "base-line" activity
- Descriptions of future sessions
- Suggestions for individual background reading

Purpose of "Jump Start" Series

- Share information about formative assessment

- Support teachers' implementation of formative assessment strategies

- Strengthen instructional planning through awareness of students' current thinking

- Encourage collaboration and exchange of ideas among colleagues

- Suggest strategies for strong partnerships between teachers and their students

- Assist teachers as they help students take greater responsibility for their own learning

Overarching Goals for "Jump Start"

- To provide teachers with understanding that formative assessment is a *process* of gathering evidence about what students know and understand, their misconceptions, and their incomplete knowledge

- To support teachers in using strategies that inform teaching and learning and shape their instructional decisions "in the moment" and in short and long-term planning

- To suggest strategies for encouraging greater involvement of students

Audience for "Jump Start" Series

- Math coaches, math specialists, faculty who teach mathematics education courses, teacher leaders might use the series with professional learning communities and informal gatherings of colleagues

- Ultimately, classroom teachers and students will implement and benefit from the strategies

  - ☐ Teachers will know more about their students' thinking and reasoning and students' misunderstandings

  - ☐ Teachers will use this knowledge to modify instruction to better meet students' needs

  - ☐ Students will be supported in taking greater responsibility for their own learning

Structure of "Jump Start" Series

- PowerPoint presentations with discussion notes, activities, and suggestions for follow-up
- Single-topic focus for each session
  - ☐ Grade-level groups, department meetings, faculty discussions, PLCs
  - ☐ Web search ideas for further information
- Technology requirements: computer and projection device; internet connection
- Leader notes for each session and discussion ideas for each slide; participant alerts (e.g., alternative ways to implement strategies, cautions)

Defining Formative Assessment

- Using all of your background knowledge, what are the <u>two</u> words you would use to define formative assessment?

Personal Goals for "Jump Start"

- On a scale of 1 to 5, what is your level of *knowledge* about formative assessment?

- On a scale of 1 to 5, what is your level of *on-going use* of formative assessment?

- What are you most proud about in your classroom related to formative assessment?

- What are you most interested in improving or changing?

- What questions do you have?

Formative Assessment Makes a Difference!

The power of formative assessment for learning, when well done, is firmly established in the research.

Black and Wiliam, 1998

I know of no other school improvement innovation that can claim effects of this nature or size.
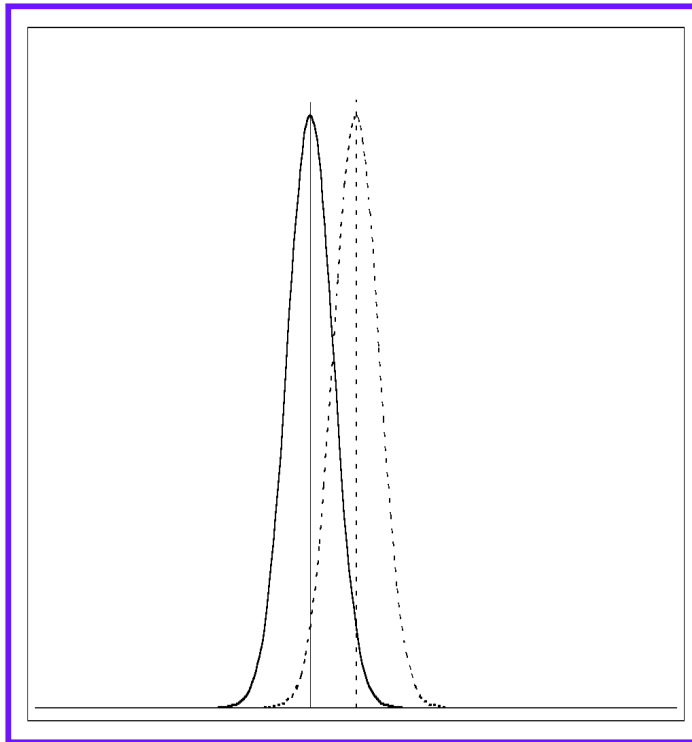
Stiggins, 2002, p.8

This is formative assessment's "advocatable moment."

Popham, 2013

Formative Assessment Makes a Difference!

Black and Wiliam (1998) report, based on their extensive review of research, typical effect sizes of formative assessment experiments are between 0.4 and 0.7

Effect Size = The number of standard deviations between the means of the experimental and control groups

A positive effect size indicates that the experimental group performed better than (that is, outscored) the control group

(Dynamic Classroom Assessment 2004)

Formative Assessment Makes a Difference!

- According to Black and Wiliam (1998), these gains are
  - Larger than most instructional innovation strategies,
  - Particularly helpful to pupils who have previously struggled,
  - Consistent across countries (i.e., US, Canada, England, Israel, and Portugal), across age brackets, and content areas, and
  - Sustained over extended periods of time (Wiliam, 2005)
- *It's really not surprising that formative assessment works so well. What is surprising is how few U.S. teachers use the process. (Popham, 2013)*

Defining Formative Assessment

Formative assessment…

- Is a deliberate process by which teachers and students gather information about what students know and can do

- Is information used by teachers to make more effective instructional decisions based on understanding how students think about key ideas and by students to improve their achievement of learning goals

- Occurs during instruction or as teachers examine student work; it supports actionable feedback

Defining Formative Assessment

Formative assessment has three key elements:

- Elicit evidence about learning to close the gap between current and desired performance

- Adjust the learning experiences to close the performance gap through useful feedback

- Involve students in the assessment learning process

Adapted from Margaret Heritage, 2008

Description of
JUMP START Sessions

Five Key Strategies

- Clarifying, sharing, and understanding goals for learning and criteria for success with learners

- Engineering effective classroom discussions, questions, activities, and tasks that elicit evidence of students' learning

- Providing feedback that moves learning forward

- Activating students as owners of their own learning

- Activating students as learning resources for one another

Leahy, S., Lyon, C.,Thompson, M., and Wiliam, D., *Educational Leadership,* 2008
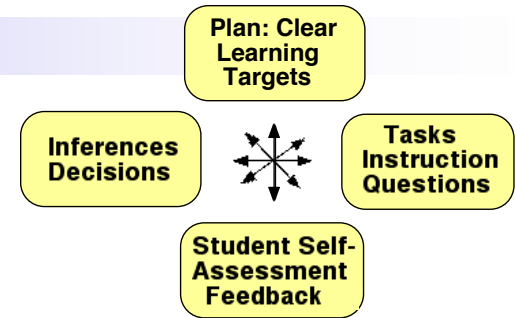
NCTM Research Brief: Five Key Strategies

- Helping learners establish where they are, where they are going, and how they will get there are processes central to formative assessment according to Wiliam and Thompson

- Read and make notes on your assigned section of the Brief

  - Clarifying, sharing, and understanding goals for learning and criteria for success with learners

  - Engineering effective classroom discussions, questions, activities, and tasks that elicit evidence of students' learning

  - Providing feedback that moves learning forward

  - Activating students as owners of their own learning

  - Activating students as learning resources for one another

- Be prepared to inform colleagues of the information in your section

NCTM Research Brief: What Does It Say?

- The Brief points out

  - There is evidence that implementation of formative assessment strategies supports student achievement

  - Implementation requires effort and support of colleagues to change the focus to what the learner is getting out of instruction

- Share the primary messages of your section

- What are you thinking about these messages?

- What would you like to know more about?

Plan: Clear
Learning
Targets

Inferences
Decisions

Tasks
Instruction
Questions

Student Self-
Assessment
Feedback

Identifying and Planning Clear Learning Targets

Teaching begins with clear learning targets

- What do we expect students to learn?
- How are they going to learn it?
- How will <u>we</u> know when they have learned it?
- How will <u>they</u> know when they have learned it?
- How will we respond when they don't?
- How will we respond when they do?

Learning takes place as students makes sense of the mathematics in their lessons

Activating Students' Prior Knowledge

- The focus is "in the moment" assessment

- Students recall what they know about a topic

- Teachers have immediate feedback on "where the group is"

- Begins the lesson with students thinking about the topic and what they already know

- Is usually short (4-6 minutes)

- Can be introductory in nature as a launch or a quick review

Feedback to Students

- Timely, actionable feedback helps students know what is correct and what they need to rethink

- Either oral or written, quality feedback moves student learning forward

- In this session there are opportunities to identify feedback that is not very helpful and turn it into comments that support student learning

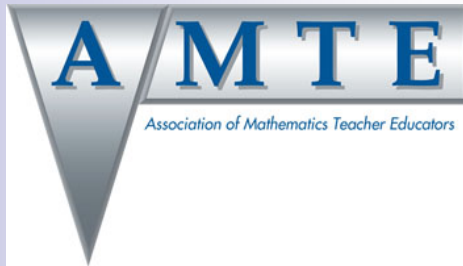# When the Answer Is Wrong…

This session has two main goals:

- To consider strategies that support what is correct in students' thinking yet address misconceptions, incomplete understanding, and wrong answers

- To identify one or more strategies that fit with each participant's instructional practices and to plan ways to implement the strategy

Plans Call For Additional Topics

- Inferences About Students' Thinking

- Student Self-Assessment

- Asking Productive Questions

- Intentional Listening

- Using Student Data To Make Instructional Decisions

- Prior Knowledge - Not To Be Ignored!

- Students Becoming Resources

References

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JUMP START
Formative Assessment

JUMP START Authors

Ana Floyd
Randolph County Schools, NC

Jeane Joyner
Meredith, College, NC

Katherine Mawhinney
Appalachian State University, NC

Mari Muri
Wesleyan University, CT

Wendy Rich
Asheboro City Schools, NC

Catherine Schwartz
East Carolina University, NC