



Strategy Planning Form

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“We were studying equivalent fractions using pattern blocks. I used the strategy planning form to set up the lesson. Students were asked to use the iPad app to explore the relationship. I then asked the students to explain their thinking using either the Explain Everything app or by using the video recording feature of the iPad ...”
—Teacher, Auburn School Department, Auburn, Maine

Purpose

The Strategy Planning Form is designed to help teachers plan how to use specific apps on iPads with students to promote mathematical thinking and discourse in the early grades. It was developed within the context of a Research + Practice collaboration to support the learning and teaching of science, technology, engineering, and mathematics (STEM). The setting of this collaboration is a K–12 school district in which one-to-one mobile devices are available to every teacher and student in early elementary classrooms.

How Does It Work?

The questions in the form prompt teachers to think about the lesson goals and pedagogical context in which they will use these apps and to hypothesize how students will respond to various aspects of the planned activity. The tool helps teachers think systematically about how interactive technologies can be used to support learning goals and to help promote a reflective and investigative mindset during instruction.

Background

In the winter of 2014, elementary school teachers, technology integrators, principals, mathematics education faculty, and researchers began working together in Auburn, Maine, to explore effective ways to use mobile technology and associated apps to support mathematics learning and teaching in kindergarten through Grade 2 classrooms. This collaboration led to a hypothesis about how the use of specific iPad apps might promote stronger mathematical thinking and discourse among students in early grades. Through iterative cycles of classroom investigation, these researchers and practitioners are examining and refining their hypothesis.

Hypothesis

If students use iPad apps to record and review explanations of their thinking as they solve mathematical problems, then their engagement in and learning of mathematics will improve.

Proposed Strategy

At least once a week, students record and review their thinking on their iPads when solving rich mathematics problems.

Areas to Explore and Observe

- » Which specific apps to use?
- » What types of problems to provide?
- » What student arrangements to assign? (e.g., individual, pairs, groups)
- » What additional scaffolds to offer?

The Strategy Planning Form helps teachers engage in purposeful planning and to implement and reflect on the group hypothesis and the proposed strategy in systematic ways.



➔ CLASSROOM CONTEXT

Grade 2 students are using virtual pattern blocks to find the relationship between a large hexagon and a small hexagon.



The students can choose any of the pattern blocks provided to determine the relationship and express it as a fraction of the whole larger hexagon.

Representation on The Patterns Shape App (Version 1.0) © The Math Learning Center, 2015. Retrieved from <https://itunes.apple.com/us/app/pattern-shapes-by-math-learning/id908511013?mt=8>

Teacher:

Grade:

Date:



Describe when and how you will ask students to record and review explanations of their thinking when solving a mathematics problem with a model or visual representation.

1. What will be your lesson goal or topic? (e.g., support understanding of subitizing, counting on, equipartitioning)

2. What mathematics problem will you ask students to solve?

3. What modeling or representation tools will you have students use to help explain their mathematical thinking?

Paper and pencil

Physical manipulative (describe):

iPad tool or app (describe) :

Other (describe): _____

4. What iPad recording tool will you have students use to record explanations of their mathematical thinking?

Explain Everything

Show Me

iPad video camera

Other (describe): _____

5. What strategies to support mathematical talk or discourse will you use with students?
(e.g., Math Congress, Gallery Walk, sentence frames)

6. With whom will students make and review their recordings?

Independently In pairs In small groups During whole-group discussion

Other (describe): _____

» Describe how you think students will respond to your strategies.

7. How will students respond to the mathematics problems that you will present?

8. How will students respond to the modeling or representation tools that you will have them use?

9. How will students respond to the strategies that you will use to promote mathematical talk or discourse?

10. How will students respond when they make and review recordings of their own mathematical thinking?