



Using Games as Tools for Learning

Investigations uses games as tools for learning because they provide opportunities for students to practice important mathematical concepts and skills and to develop and deepen their mathematical understanding and reasoning. Games are not isolated activities but are woven throughout the curriculum, and are preceded and followed by related activities.

Planning Ahead

Before introducing a new game teachers should read the session in which it appears, paying particular attention to the Math Focus Points that explain the mathematics of the game. Some games have a Teacher Note or Dialogue Box associated with them that explains how to introduce the game, what to look for as students play, and/or what a pair's interaction or whole group discussion might look like.

Teachers should play the game themselves or with a colleague to make sure they understand the rules and what they will be asking students to do. Playing the game will help them figure out what materials are needed and how best to prepare them. It will also help them think through how to introduce the game, and whether a strategy like preteaching it to an individual or small group makes sense.

They should also look through the session for any "Supporting the Range of Learners" sections. These ideas, as well as the "More Ways to Play" suggestions found on the games directions pages, help teachers think about ways to adapt the game for students who need more support or challenge. They also help teachers determine which students might need these adaptations, based on the strategies students are using. Before introducing any modifications, teachers should consider how changing the rules of the game does/does not change the mathematical ideas with which students are working.

The Classroom Environment

In order to use games effectively, teachers need to create a classroom environment that supports their use. This means that students have a sense of responsibility for the materials in their classroom, know how and where to get them, how and where to put them away, and how to use them appropriately (e.g. keeping track of pieces, not bending cards). Many teachers work with students in the beginning of the year to develop routines for taking care of their classroom, knowing that students are more attentive to rules they have helped create.

For games to work well as tools for learning students need to learn to work independently (whether individually, with a partner, or as part of a small group) and cooperatively, to stay on task, and to see their classmates as resources for advice and support. Teachers promote this

classroom culture through discussions, role-playing, practice and modeling. For example, a class might discuss ways to be a good partner; role-play how to work cooperatively; practice ways to disagree respectfully; or model patient waiting and good listening. Many teachers institute an “ask three then me” rule where students seek help from three different classmates before asking the teacher for assistance. Such discussions and processes provide students and teachers with tools for handling issues that can arise over the course of the year.

Playing Games at School

Students often play games as part of an *Investigations* session or lesson. However, the more students play, the more practice they get, and the more they are engaged in doing math. One way to encourage repeated play is to make games available for students during any free time, for example at the beginning and end of the school day, and/or during indoor recess or choice time. They can also be assigned for homework, available in the before/after school program, played with a mentor or buddy, or suggested to families as a way to work with their child on the facts.

Playing Games at Home

Games provide a wonderful way for families to do math together and to connect with the math their children are working on at school. Games are occasionally assigned for homework but the more students play them the better. Because games are a familiar activity that many families already enjoy together they are a great way to engage families in doing math for fun.

There are many ways that schools and teachers can support this important connection. Some hold Math Nights where parents learn the games and receive copies to play at home. Others create game packs that students can bring home and teach to their families. Others have parent representatives make and distribute games at parent coffees or PTA/PTO meetings. The Student Math Handbook is a useful resource for families to have at home as it has directions for all the games at a particular grade level and is available in English or Spanish.

Note: This essay is largely based on the section of “Using *Investigations*” that is about games in the curriculum. See *Implementing Investigations in Grades X*.