What do **GAMES** Have To Do With Standards-Based Math Practices?

### HERE’S THE SITUATION...
1,000 Students were asked if they’d rather eat broccoli or do math problems.

**Most chose broccoli.**

### SO...
How do we get students to choose math?

**AND...**
How do we get them to go deeper in their learning and develop the kind of mathematical practices described in state standards?

### LEVERAGE THEIR LOVE OF DIGITAL GAMES
- Of 2-17 year olds play video games
- Both boys and girls!

**Nearly 2/3 of young Americans play games while interacting with friends and family.**

They’re communicating and working collectively (A.K.A. constructing viable arguments and critiquing the work of others!)

**74%** of K-8 teachers use digital games in instruction

### GAMES MAKE BRAINS GROW
A study using fMRI technology showed three areas of brain growth after two months of playing digital games.

- **Prefrontal Cortex**
  - abstract thinking
  - analyzing
  - making choices
  - making predictions

- **Hippocampus**
  - memory
  - spatial navigation
  - learning

- **Cerebellum**
  - movement

**If designed well, game-based learning can harness students’ intrinsic motivation and love for play and lead them toward complex problem solving.**

### WHAT KIND OF GAMES HELP DEVELOP STRONG MATHEMATICAL PRACTICES?

**GAMES THAT**

- Create a compelling world of problem-solving
- Allow self-directed exploration
- Deliver scaffolded, mastery-based learning
- Provide data for players to monitor their own progress
- Offer real-time feedback to help players adjust their solution path

To find out more about how game-based learning can build strong mathematical practices, contact MIND Research Institute:

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**PRODUCTIVE STRUGGLE**

If you think about it, most of game playing is failing, so why don’t players give up?

**... Giving our kids ample opportunity to fail will turn them not into abject failures, but into gritty, impassioned, self-reliant learners.”**
— Greg Toppo

**Nearly 3/4 of digital game-using teachers report that games have been effective in improving students’ mathematics learning.**

**Teachers who use games more often report greater improvement in students’ core and supplemental skills.**

**However, most teachers need help finding curriculum-aligned games that lend themselves to deep exploration and complex problem solving.**

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