

BRAINS, GAMES & LEARNING

What science tells us about brain mechanisms involved in learning and playing digital games.

DID YOU KNOW?

Dopamine is a neurotransmitter, responsible for conveying information between different parts of the brain.



LEARNING NEW INFORMATION

Dopamine levels increase when we learn new and pleasurable information, such as when a baby learns to walk.



IMPROVING MEMORY

Dopamine also helps us remember information better by consolidating newly learned content into memory.



Dopamine has an impact on the hippocampus, a brain structure that plays a pivotal role for long-term memory



INCREASING MOTIVATION

Research also shows that dopamine plays an important role in carrying out goal-directed behavior.



DID YOU ALSO KNOW?



Digital **game-based learning** environments seem to elicit a similar neural response as other pleasurable dopamine-releasing experiences.

*And there is evidence that information (e.g., math content) that's associated with pleasurable experiences (e.g., the joys of playing a video game) results in a **better memory** of this information.*

CRAVE CHALLENGE

Students in game-based learning environments can grow to crave that rewarding moment when they solve a challenging problem, building **motivation to persevere**.



Consider how to incorporate instructional problem-solving games into your classroom.



And then just let the brain do what it does—**students will start identifying rigorous problem solving as something pleasurable**, and seek it out again!