Game Theory for Elementary School

BRAVE games, including JAMs, are a Game Theory application called "repeated games" that explore the role trust plays in conflict and cooperation.

With JAMs, students employ skilled reading to layer viewpoints, detect bias, then diagnose and transform embedded dilemmas. Groups of 4 can use these 30-minute activities as prequels or sequels to BRAVE board game learning, or as stand-alone fun.

Each booklet in this series presents a unique schema designed to prepare students to play its correlating JAM.

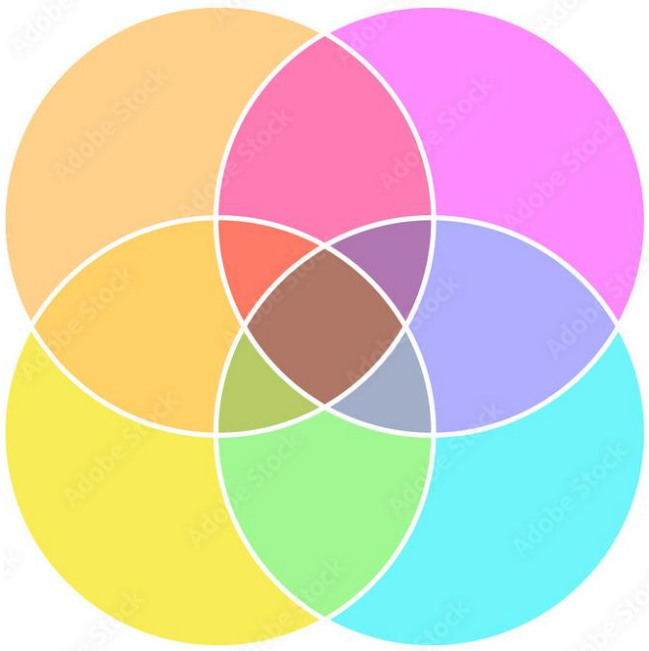
Explore one schema, or try them all:

Game Theory
context
perspective
change
conflict
rights
cooperation
connection
trust
creativity

Taken together, this approach aims to equip students with a range of tools needed to navigate social studies class with an open heart and a discerning mind.

BRAVE COURSE
Gamifying U.S. History

Creativity



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For parents & teachers: Welcome!

BRAVE games, including JAMs, are consistent with Science of Reading instructional guidelines. Tightly-scoped, this inquiry-led method puts knowledge in the foreground to cut across a range of K4-5 standards, meeting all learners where they are to get everyone in the game!

We take learning seriously. *And for fun.*

JAMs break from typical programming insofar as they're consistent with cognitive science. First, human connection sparks intrinsic motivation, incentivizing skilled reading. The beauty of this method is that players *want* to grapple with embedded vocabulary, engage in healthy discussion, and solve group problems. It's fun. This means students embrace the thrill of collaborating, reasoning with facts, sequencing, and testing truths.

Writing extensions provide explicit instructions to support students as they process, integrate, and store new knowledge. This last step is key because, according to Cognitive Load Theory, it effectively clears one's working memory, laying a foundation of knowledge to excel in equivalent classes at higher grades.

Messy? R&D revealed students thrive with this inquiry-led approach because it's intriguing. At that rate, they're positioned to soar beyond our wildest dreams.

VOCABULARY

chaos a state of utter confusion or disorder; a total lack of organization or order

courage the quality of mind or spirit that enables a person to face difficulty, danger, pain, etc., without fear; bravery

collaborate to work, one with another; to cooperate with

create to evolve from one's own thought or imagination; something unique that wouldn't naturally evolve

imagine to form a mental image of something

invention creating or producing by exercise of the imagination, especially in art, music; a new, useful process, machine, improvement that did not exist before

manifest to make clear or evident; show in plain sight

novel (noun) a work of non-fiction; (adjective) a new and unusual kind; different from anything seen or known

status quo existing condition, present state of affairs

symphony a harmonious combination of elements

synergy the interaction of elements that when combined produces an effect that's greater than the sum of its parts

unique having no like or equal; unparalleled; incomparable; not typical; unusual

4. SUMMARY

Creatives and inventors are standouts in a world where survival is already a challenging task. These highly intuitive and responsive people are not only trying to survive, they're pushing the boundaries of what's possible.

Some creatives have the unique capacity to go within, to draw on their inner lives to imagine something completely original—music, art, poetry, short stories, novels, screenplays. In this case, they're noted for their ability to forge something novel. This is a unique skill, not only in terms of talent, but also in terms of **courage**, the quality of mind or spirit that enables a person to bring forth something that only they can see or imagine.

Other creatives, no less courageous, are inventors who work in response to faulty systems they've observed and in response make adaptions, putting forth a new iteration of an exiting thing, something more efficient.

In both cases, it isn't easy demanding change in a world that prefers the **status quo**, or existing conditions. Heroic efforts notwithstanding, building and launching novel products takes a coordinated effort, a synergistic process shouldered by individuals, families, science, government, business and society.

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VOCABULARY

"And those who were seen dancing were thought to be crazy by those who could not hear the music."
Friedrich Nietzsche

What are you waiting for?! Dig in!

1. IMAGINATION

People who introduce something **novel** to the world, a thing or process that's **unique**, new and original, are often called creatives. Creatives **imagine**, use internal mechanisms to build something with their thoughts, something that doesn't already exist or wouldn't naturally evolve. Next, they **manifest** their vision, or bring it life. This journey is called **creation.**

Take, for example, Ludwig van Beethoven, a German pianist and composer of music (1770-1827). By today's standards, Beethoven is considered genius based on the music he wrote, including complex **symphonies**, arrangements performed by small and large orchestras using multiple kinds of instruments. While Beethoven is considered one of the greatest, if not the greatest composer of all time, it is important to know that as a child he did not excel at math or writing. In his own words, "Music comes to me more readily than words." *So how did Beethoven do it?* How did he imagine and write polyrhythmic music on a scale the Western world had never experienced?

Adding to this mystery, Beethoven wrote many of his greatest symphonies while going deaf, or while stone deaf, based solely on his thoughts. Giving meaning to the phrase, "If you can think it, you can do it.

SYNERGY

GUIDING QUESTIONS CLASS DISSCUSION

1. **RE-TELL** What does synergy mean?

2. **REVIEW** Explain how the processes of bringing a thing or process to market is a synergistic effort.

3. **REASON** If STEM is excellent for nurturing inventions, explain why STEAM fosters an even greater capacity for inventing and inventions.

3. SYNERGY

Sometimes novel ideas come from within, and sometimes novel ideas come in response to some flawed thing or process. Either way, it's important to consider how creatives and inventors position themselves to manifest their vision since rarely do people exist within a vacuum.

If creatives appear to work alone, remember someone had to notice their spark, feed their belly, and praise their efforts. Whether through parenting, befriending, teaching, making a financial contribution or grant, or purchasing the product—creatives need us as much as we need them!

In the case of inventors, nobody goes alone! Remember these THREE things: **1)** Science builds on science! Scientists benefit from previous hypotheses, inquiries, failures and successes. **2)** Many of the world's greatest inventors have received massive and lifelong financial help that offset costs related to research, often government sponsorship. **3)** Some level of **collaboration**, to work in cooperation, is necessary to refine inventions, conduct endless research and development (R&D), and bring inventions to market.

In sum, creations are almost always a **synergistic** effort, an interaction of many people or groups, whereby the outcome is more than the sum of its parts.

IMAGINATION

GUIDING QUESTIONS CLASS DISCUSSION

1. **RE-TELL** Where do original ideas originate? [It's okay to wonder...that's the point]

2. **REVIEW** Do you dream while asleep? Where do you think those images and sequences originate?

3. **REASON** What do you think it means to say, "If you can think it, you can do it"?

2. CHAOS VERSUS NEED FOR ORDER

In the previous section, we discussed how creatives imagine new things or processes *from within*. Meanwhile, some inventors imagine new things or processes in response to existing problems that have disrupted their sense of logic. These people perceive some aspect of reality as unnecessarily disordered, **chaotic**, confusing, and/or inefficient. Another way of saying this is that they see a need to create a "workaround," to simplify a process through increased logic or efficiency.

For example, in the past, people went to the bathroom in chamber pots. Think: a bucket that someone must empty manually. This perpetuated filth, and therefore disease. Luckily, someone came up with an **invention**, a machine that replaced the chamber pot with a porcelain seat with an inflow of fresh water and outflow for dirty water and combined them with force and gravity. The invention? The flushable toilet.

Other inventions that've made our lives easier, safer, more ordered and less chaotic include the printing press, democracy, vaccines, refrigerators, hospitals, public transportation, computers and more!

CHAOS vs. NEED FOR ORDER
GUIDING QUESTIONS CLASS DISCUSSION

1. **RE-TELL** What thought processes cause an inventor to see an existing thing and think, "Wait, I could create a better version of that thing?"

2. **REVIEW** Brainstorm a list of things that you consider ridiculously old-fashioned (coins, land-lines, etc.) Explain why these things make you laugh and wonder how old people coped?

3. **REASON** What things or systems that make up our world do you think your grandchildren's grandchildren will laugh and roll their eyes at and wonder how YOU coped?