STEAM Games

Mid-Valley
STEM-CTE HUB

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STEAM Games

The STEAM Games Kit offers a collection of engaging games and puzzles that challenge students' logic, problem-solving, and strategic thinking. From fast-paced dice games like Tenzi to complex 3D puzzles and logic challenges like Color Cube Sudoku, this kit provides interactive ways to explore math, spatial reasoning, and critical thinking. Perfect for individual or group play, these activities promote hands-on learning while fostering collaboration and cognitive development.

Grade Level
3rd - 12th grades

Group Size
Up to 20 students

Time Duration
15 - 120 minutes

Content of Kits

Components

- 6x 3D puzzles
- 4x Tenzi packs
- 1x Tenzi party pack
- 2x Tenzi card packs
- 1x Color Cube Sudoku
- 1x Prime Club
- 1x Coral Reef game

- 2x Brain teaser puzzles
- 1x Double-Nine Dominoes set
- 1x Wooden dominoes set

Usage

Getting Started

1. **Introduce the Games** – Briefly explain the rules of each game, emphasizing how they connect to STEAM concepts like logic, probability, and spatial reasoning.

2. **Encourage Hands-On Exploration** – Allow students to experiment with different games in small groups to discover strategies and patterns.

3. **Incorporate STEAM Challenges** – Adapt gameplay by introducing variations that require problem-solving, teamwork, or mathematical reasoning.

4. **Reflect and Discuss** – Facilitate discussions on gameplay strategies, key takeaways, and real-world applications.

Storage

Keep the games and their components stored securely in the kit's bin when not in use, preferably in a dry and organized space. Ensure all lids and boxes are secure to prevent losing or damaging critical game pieces.

Troubleshooting

Refer to the individual game instructions for troubleshooting guidance.

Activity Guide

Beginner

Dice Probability Exploration
Students play Tenzi while exploring probability, predicting outcomes, and tracking results. They analyze patterns in randomness and discuss how probability applies to real-world scenarios like games, statistics, and decision-making.

Intermediate

Spatial Logic with 3D Puzzles
Using 3D puzzles, students develop spatial reasoning by visualizing, rotating, and fitting pieces together. They reflect on problem-solving techniques and discuss how spatial awareness is essential in fields like engineering, architecture, and design.

Advanced

Strategy & Pattern Recognition
Students engage with Color Cube Sudoku or Prime Club, applying mathematical logic and pattern recognition to solve complex challenges. They analyze different strategies, compare approaches, and discuss real-world applications of structured problem-solving.

Extension Activities:

Game Design Challenge – Students design a new STEAM-based game inspired by the kit, incorporating elements of logic, probability, or spatial reasoning. They create rules, test gameplay, and present their designs to the class for feedback and refinement.

Tournament Challenge – Host a multi-game tournament where students rotate through different STEAM challenges, earning points based on strategic thinking, problem-solving skills, and teamwork. This activity encourages friendly competition while reinforcing STEAM concepts in an engaging way.

Learning Extensions

STEAM Connections: Math - Engineering - Science

Learning Objectives:

- Strengthen logical reasoning and pattern recognition through hands-on problem-solving.
- Develop an understanding of probability, statistics, and mathematical relationships.
- Improve spatial awareness and visualization skills through 3D puzzles and logic challenges.
- Foster critical thinking and strategic decision-making in competitive and collaborative settings.

Career Connections:

- **Game Design & Development –** Develops skills in logic, probability, and mechanics, essential for designing board games and digital games.
- **Mathematics & Data Science –** Strengthens understanding of probability, patterns, and statistical analysis, relevant for careers in finance, research, and analytics.
- **Engineering & Architecture –** Encourages spatial reasoning and problem-solving, which are foundational for structural design and mechanical engineering.
- **Education & Cognitive Science –** Builds instructional and analytical skills useful in teaching, curriculum design, and learning psychology.

Essential Employability Skills:

- Critical thinking,
- Communication
- Team work
- Environmental awareness.

Resources and Accessibility

Safety Guidelines

- To avoid choking hazards, ensure students don't put small pieces in their mouths.

Accessibility

- **Visual Accessibility** – Use large-print or braille cards, high-contrast dice and dominoes, and magnifying tools for better visibility.
- **Motor Skill Support** – Provide cardholders, adaptive grips, alternative dice-rolling methods, and encourage teamwork to assist with handling pieces.
- **Cognitive and Processing Support** – Offer step-by-step visual instructions, color-coded components, and extra processing time with clear, simple game rules.
- **Sensory-Friendly Adaptations** – Provide a quiet game area, fidget-friendly materials, and digital game alternatives for students with sensory sensitivities.
- **Inclusive Participation** – Modify game rules, encourage cooperative play, and offer multiple ways to engage, such as verbalizing moves or using a whiteboard.

Library Catalog

Library Resources

Feedback

QR to feedback survey