Gamify Math

Mid-Valley
STEM-CTE HUB

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Gamify Math

The Gamifying Math STEAM Kit uses games and manipulatives to make math fun, engaging, and collaborative. With Math Dice Games, Fraction Tower Cubes, Buildzi sets and cards, and Number Buddies, students explore math concepts through play, building fluency in operations, fractions, number sense, spatial reasoning, and problem-solving. The kit fosters a positive math mindset while encouraging friendly competition, creative thinking, and teamwork.

Grade Level

2nd - 6th

Group Size

2-4 students per game/activity

Time Duration

15 - 30 minutes per game round

Content of Kits

Components

- 3 × Math Dice Games
- 1 × Fraction Cube Towers
- 2x Buildzi
- 1x Buildazi cards
- Number Buddies game

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Usage

Getting Started

1. **Introduce Kit Components -** Briefly show each game/manipulative and explain which math skills it supports.
2. **Start with Free Play or Rotation -** Let students try out one or two games to explore how they work before focusing on learning objectives.
3. **Model Math Dice Game -** Demonstrate rolling dice and forming equations to hit a target number.
4. **Review Buildzi/Number Buddies Rules -** Go over the rules for Buildzi and Number Buddies, and model a round.
5. **Organize Stations or Centers -** Set up the classroom with stations so students can rotate through different games, building different math skills with each one.

Storage

- Store each game (Math Dice, Number Buddies, Buildzi, Fraction Tower Cubes) in a labeled pouch or box.
- Use a central bin or tub to hold the full kit for easy checkout and classroom setup.

Troubleshooting

- **Uneven Participation -** Assign group roles (roller, equation writer, builder, scorer) to ensure everyone engages.

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Activity Guide

Station 1

Math Dice Games Station
Materials: Math Dice Games
Skills: Number sense, operations fluency, flexible thinking
How to Use:

- Students roll dice to create target numbers.
- Use remaining dice to form equations to match or approach the target.
- Record solutions and points — bonus points for finding multiple solutions.

Station 2

Fraction Tower Cubes Station
Materials: Fraction Tower Cubes, activity prompts/cards
Skills: Fractions equivalence, addition/subtraction of fractions, comparing fractions
How to Use:

- Students select a challenge card (ex: Build 1 whole using at least 3 different fractions).
- Build fraction towers that show equivalencies or complete operations.
- Record answers and discuss findings.

Station 3

Buildzi Station
Materials: Buildzi sets, Buildzi cards
Skills: Spatial reasoning, pattern recognition, measurement, balance
How to Use:

- Students race to replicate tower patterns shown on cards.
- For non-competitive groups: Collaborate to build accurate towers and reflect on building strategies.
- Challenge option: “Build the tallest possible stable tower using all blocks.”

Station 4

Number Buddies Game Station
Materials: Number Buddies game(s)
Skills: Place value, addition, subtraction, strategic thinking
How to Use:

- Students play Number Buddies according to standard game rules.
- Challenge variations: Set a “magic number” and race to build it, or add a scoring system for creative combinations.
- Focus on explaining the number strategies used during play.

Optional: Station 5

Differentiation Station
Materials: Whiteboards, number cards, manipulatives of choice
Use this station for:

- Targeted skill review for students needing extra support.
- Enrichment problems for advanced learners.
- Facilitated math discussions around patterns, strategies, and math thinking.

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Learning Extensions

STEAM Connections: Math

Learning Objectives:

- Build math fluency in operations, fractions, and number sense.
- Strengthen spatial reasoning and visual problem-solving.
- Practice mathematical thinking through game-based challenges.
- Foster collaboration and communication during gameplay.
- Develop creativity and flexible thinking by designing new math games.

Career Connections:

- **Game Designer -** Uses math for mechanics, probability, and balance in game creation.
- **Architect -** Applies spatial reasoning and measurement in building design.
- **Data Analyst -** Interprets and uses numeric data in decision-making.
- **Software Developer -** Uses logic, sequences, and patterns — core mathematical thinking.
- **Educator -** Integrates hands-on, engaging activities to support diverse learners in math.

Essential Employability Skills:

- Numeracy
- Critical Thinking
- Collaboration
- Creativity
- Communication
- Problem solving

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Resources and Accessibility

Safety Guidelines

- Monitor dice and small pieces to avoid choking hazards for younger learners.
- Encourage students to play gently with all game components to prevent breakage.
- Use soft mats or tablecloths to minimize dice bouncing onto floors.
- Clean game pieces regularly to maintain hygiene, especially with shared use.

Accessibility

- Provide larger or high-contrast number tiles/cards if needed.
- Allow for collaborative play so students with physical challenges can partner with peers.
- Offer verbal prompts and visual guides to support varied learning needs.
- Adapt game pacing or scoring to promote success and engagement for all learners.

Library Catalog

Library Resources

Feedback

QR to feedback survey