# Fraction Stax


Mid-Valley
STEM-CTE HUB

www.midvalleystem.org
midvalleystemctehub@linnbenton.edu
Linn-Benton Community College
Albany Campus - CC-212

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# Fration Stax

The Fraction Stax STEAM Kit offers a dynamic, hands-on approach to understanding fractions. Featuring 51 colorful, stackable pieces representing fractions from 1/12 to 1 whole, students can build and compare fractions on a 9-peg base, enhancing their grasp of equivalence, comparison, and operations. This tactile experience supports learners in visualizing and internalizing fraction concepts, making abstract ideas concrete.


## Grade Level

**$2^{nd}$ - $6^{th}$**

## Group Size

**1 -2 students per Fraction Stax**

## Time Duration

**15 - 30 minutes**

## Content of Kits

### Components

- 15 Fraction Stax

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# Usage

## Getting Started

1. **Introduce the Components -** Demonstrate how each colored stack represents a specific fraction and how they fit onto the 9-peg base.
2. **Explore Equivalents -** Encourage students to stack different fractions to find combinations that equal one whole.
3. **Compare Fractions -** Have students build and compare stacks to understand greater than, less than, and equal relationships.
4. **Engage in Operations -** Use the stacks to model the addition and subtraction of fractions with like and unlike denominators.
5. **Reflect and Discuss -** Prompt students to explain their reasoning and the strategies they used during activities.

## Storage

- **Inventory Checklist -** Maintain a checklist to ensure all pieces are accounted for after each use.

## Troubleshooting

- **Difficulty Understanding Concepts -** Pair students for peer teaching or provide additional visual aids and examples.
- **Storage Challenges -** Implement color-coded labels and designated storage spots to streamline organization.

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# Activity Guide

## Beginner

**Building Basic Fractions**
Students use the Fraction Stax to build representations of common fractions (e.g., 1/2, 1/4, 1/3) and combine them to form wholes, enhancing their understanding of part-to-whole relationships.

## Intermediate

**Exploring Equivalents**
Students stack different fraction pieces to discover and record multiple combinations that represent the same value (e.g., 1/2 = 2/4 = 3/6), reinforcing the concept of equivalence.

## Advanced

**Fraction Operations Challenge**
Students use the stacks to model and solve fraction addition and subtraction problems, including those with unlike denominators, promoting a concrete understanding of these operations.

## Extension Activities:

**Real-World Fraction Applications**
Students create and solve word problems involving fractions (e.g., cooking measurements, dividing items), using the Fraction Stax to model and solve these problems, bridging the gap between abstract concepts and practical use.

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# Learning Extensions

## STEAM Connections: Math

## Learning Objectives:

- Understand and represent fractions using visual models.
- Identify and create equivalent fractions.
- Perform addition and subtraction of fractions with like and unlike denominators.
- Apply fraction knowledge to solve real-world problems.
- Develop mathematical reasoning and communication skills.

## Career Connections:

- **Chef/Baker -** Uses fractions to measure and adjust recipes.
- **Carpenter -** Applies fractions in measuring and cutting materials accurately.
- **Pharmacist -** Calculates dosages and measurements using fractions.
- **Engineer -** Utilizes fractions in design specifications and measurements.
- **Financial Analyst -** Interprets data and financial ratios involving fractions.

## Essential Employability Skills:

- Numeracy
- Problem-Solving
- Attention to Detail
- Critical Thinking
- Communication

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# Resources and Accessibility

## Safety Guidelines

- **Proper Use -** Instruct students on the correct way to stack and handle pieces to prevent damage.
- **Cleanliness -** Regularly clean pieces to maintain hygiene, especially in shared settings.

## Accessibility

- **Visual Aids -** Use high-contrast colors and large print materials to support students with visual impairments.
- **Alternative Formats -** Provide digital or tactile alternatives for students with different learning needs.
- **Flexible Grouping -** Encourage collaborative work to support peer learning and accommodate diverse abilities.
- **Instructional Support -** Offer step-by-step guides and verbal instructions to assist students who benefit from additional guidance.

## Library Catalog

## Library Resources

## Feedback

QR to feedback survey