The following apps are from Apple's AppStore and are for use with Apple iPads. Although the list is by no means exhaustive, we strove to provide reviews of apps that directly impacted the teaching and learning of mathematical concepts.

<table>
<thead>
<tr>
<th>App Icon</th>
<th>App Name</th>
<th>Developer</th>
<th>Cost</th>
<th>Overview</th>
<th>Grade Band</th>
<th>App's Key Features:</th>
<th>Purpose: (Why This App?)</th>
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</thead>
<tbody>
<tr>
<td><img src="image" alt="App Icon" /></td>
<td><strong>5 Dice Order of Operations</strong></td>
<td>Justin Holladay</td>
<td>$0.00</td>
<td>The game encourages students to use higher order thinking to solve the “target” number by working backwards given the answer but not the equation.</td>
<td>Primary</td>
<td>Game Play</td>
<td></td>
</tr>
</tbody>
</table>

**Math Strand:**
- Number Sense and Numeration
- Data Management and Probability
- Geometry and Spatial Sense
- Measurement
- Patterning and Algebra

**Mathematical Processes Achieved:**
- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational Connecting
- Representing / Modelling
- Communicating

**Advantages and Disadvantages for Teaching:**

**Suggested Use:**

**App's Key Features:**
- Game Play
- Game Principled
- Scaffolding
- Open Response
- Multiple Choice

**Purpose:**
- Concept Development
- Concept Exploration
- Practice
- Tool/Manipulative
- Student Tracking
- EQAO Style
- Identify Student Errors
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<th>Mathematical Processes Achieved:</th>
<th>Advantages and Disadvantages for Teaching:</th>
<th>Purpose: (Why This App?)</th>
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<tbody>
<tr>
<td>Number Sense and Numeration</td>
<td>Problem Solving ✓</td>
<td>Includes a &quot;Study Plan&quot; for students. Students can email study plan to parents and teachers. Problems are both computation-based and theory based. Alligned to Common Core Standards.</td>
<td>Concept Development ✓</td>
</tr>
<tr>
<td>Data Management and Probability</td>
<td>Reasoning / Proving ✓</td>
<td></td>
<td>Concept Exploration</td>
</tr>
<tr>
<td>Geometry and Spatial Sense</td>
<td>Reflecting ✓</td>
<td></td>
<td>Practice ✓</td>
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<tr>
<td>Measurement</td>
<td>Selecting Tools / Computational Connecting ✓</td>
<td></td>
<td>Tool/Manipulative</td>
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<tr>
<td>Patterning and Algebra</td>
<td>Representing / Modelling ✓</td>
<td></td>
<td>Student Tracking</td>
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<tr>
<td></td>
<td>Communicating ✓</td>
<td></td>
<td>EQAO Style ✓</td>
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**Overview:**

**7th Grade Math** is a Multiple Choice Question bank that spans all the math strands. Multiple Depth of Knowledge levels are supported to challenge advanced students and to build mastery for struggling students.

**Advantages and Disadvantages for Teaching:**

- Includes a "Study Plan" for students. Students can email study plan to parents and teachers. Problems are both computation-based and theory based. Alligned to Common Core Standards.

**Suggested Use:** Practice and diagnostic use.

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**8th Grade Math** is a Multiple Choice Question bank that spans all the math strands. Multiple Depth of Knowledge levels are supported to challenge advanced students and to build mastery for struggling students.

**Advantages and Disadvantages for Teaching:**

- Includes a "Study Plan" for students. Students can email study plan to parents and teachers. Problems are both computation-based and theory based. Alligned to Common Core Standards.

**Suggested Use:** Practice and diagnostic use.
**Algebra Tiles**

**Developer:** Brainingcamp, LLC

**Overview:** Algebra Tiles app allows to work with algebraic expressions and equations, as well as annotate directly on the work canvas. Choose from three workspaces: factors/multiplication, equations, and expressions. Notation bar keeps track of the built tile.

**Mathematical Processes Achieved:**
- Number Sense and Numeration
- Data Management and Probability
- Geometry and Spatial Sense
- Measurement
- Patterning and Algebra

**Advantages and Disadvantages for Teaching:**
- Different mats to work on (multiplication, expression, and equation). Pair positive and negative tiles to create zero pairs and watch them sum to zero and disappear.

**Suggested Use:** For use during algebraic reasoning lessons and to aid in practice of learned concepts.

**Algebra Tiles for Factoring and Solving**

**Developer:** Steve Rhine

**Overview:** The game consists of solving equations for x, substituting in variable expressions, and expanding and factoring equations (Senior). Negative variables are also included. Students score points for correctly representing, and then manipulating algebra tiles.

**Mathematical Processes Achieved:**
- Number Sense and Numeration
- Data Management and Probability
- Geometry and Spatial Sense
- Measurement
- Patterning and Algebra

**Advantages and Disadvantages for Teaching:**
- Use for practicing to use Algebra Tiles to represent and solve equations. However, you are forced to use the equation from the game.

**Suggested Use:** This is a game-principled practice app that could be used to support already learned concepts.
**Algebra Tiles: Visualize Math**

**Developer:** Reese McLean

**Overview:** An excellent virtual manipulative that allows students to work with algebraic expressions and equations. Allows students to explore, use the expression mat for brackets, make comparisons to other expressions, and model variable multiplication as an area.

**Math Strand:**
- Number Sense and Numeration
- Data Management and Probability
- Geometry and Spatial Sense
- Measurement
- Patterning and Algebra

**Mathematical Processes Achieved:**
- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational
- Connecting
- Representing / Modelling
- Communicating

**Advantages and Disadvantages for Teaching:**
- "Mats" or worksheets can be saved for later use or exported as an image for sharing. Negative units can be inserted if needed.

**Suggested Use:** Can be used to model algebraic reasoning during lessons, as well as used to aid in practice.

**Grade Band:**
- Primary
- Junior
- Intermediate
- Senior

**Purpose:**
- Game Play
- Game Principled
- Scaffolding
- Open Response
- Multiple Choice
- Concept Development
- Concept Exploration
- Practice
- Tool/Manipulative
- Student Tracking
- EQAO Style
- Identify Student Errors

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**Algebra Touch**

**Developer:** Regular Berry Software LLC

**Overview:** Algebra Touch allows students to work with equations, exponents, distributive property, simplifying, and more. Students can explore Order of Operation and what happens to equations when they perform different operations.

**Math Strand:**
- Number Sense and Numeration
- Data Management and Probability
- Geometry and Spatial Sense
- Measurement
- Patterning and Algebra

**Mathematical Processes Achieved:**
- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational
- Connecting
- Representing / Modelling
- Communicating

**Advantages and Disadvantages for Teaching:**
- Students can work with pre-created problem or enter their own problem to solve.

**Suggested Use:** Practice and Concept exploration after students grasp the conceptual understandings and can begin to apply their understandings.

**Grade Band:**
- Primary
- Junior
- Intermediate
- Senior

**Purpose:**
- Game Play
- Game Principled
- Scaffolding
- Open Response
- Multiple Choice
- Concept Development
- Concept Exploration
- Practice
- Tool/Manipulative
- Student Tracking
- EQAO Style
- Identify Student Errors
### Angle Meter HD

**App Name:** Angle Meter HD

**Developer:** AppleInTheSky.com

**Overview:** Angle Meter is a Virtual Measurement tool that allows students to measure angle in the actual environment using the camera on the ipad and this app. Also comes in a Lite version (Free) that has ads and cannot "pause" angle calculation.

**Math Strand:** Number Sense and Numeration, Geometry and Spatial Sense, Measurement, Patterning and Algebra

**Mathematical Processes Acheived:** Problem Solving, Reasoning / Proving, Reflecting, Selecting Tools / Computational Connecting

**Advantages and Disadvantages for Teaching:** Measure angles in your own environment instead of using a protractor on sheets of paper. Due to the sensitivity of the iPads sensors, the angle measure is in constant flux (if you have the paid version you can pause the measure).

**Grade Band:** Primary, Junior, Intermediate, Senior

**App's Key Features:** Game Play, Game Principled, Scaffolding, Open Response, Multiple Choice

**Purpose:** (Why This App?) Identify Student Errors

**Suggested Use:** Use as a measurement tool for measuring angles as seen by the ipad's camera.

### Area of Figures

**App Name:** Area of Figures

**Developer:** Brainingcamp, LLC

**Overview:** Area of Figures app helps with the concept of area by aiding in deriving and applying the formula for area of rectangles, parallelograms, triangles, and circles. Narrated lessons, practice questions, virtual manipulative, and challenge game available.

**Math Strand:** Number Sense and Numeration, Geometry and Spatial Sense, Measurement, Patterning and Algebra

**Mathematical Processes Acheived:** Problem Solving, Reasoning / Proving, Reflecting, Selecting Tools / Computational Connecting

**Advantages and Disadvantages for Teaching:** Animated interactive examples and guided tutorial help students visualize the concepts.

**Grade Band:** Primary, Junior, Intermediate, Senior

**App's Key Features:** Game Play, Game Principled, Scaffolding, Open Response, Multiple Choice

**Purpose:** (Why This App?) Identify Student Errors

**Suggested Use:** Struggling students may find the interactive tutorial and manipulative helpful in making sense of the area of shapes. Extra practice for students.
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<th>Suggested Use</th>
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<td></td>
<td><strong>Buzz Math</strong></td>
<td>Scolab Inc.</td>
<td>Primary, Junior, Intermediate, Senior</td>
<td>Number Sense and Numeration, Data Management and Probability, Geometry and Spatial Sense, Measurement, Patterning and Algebra</td>
<td>✓ Problem Solving, ✓ Reasoning / Proving, ✓ Reflecting, ✓ Selecting Tools / Computational Connecting, ✓ Representing / Modelling, ✓ Communicating</td>
<td>Based on Common Core Standards (US). Teachers are able to create a class roster and assign particular modules to whole class or individual students. Paid subscription required for student tracking, sample solutions and detailed solutions</td>
<td>Practice of learned concepts. Students needing review of past concepts can be assigned earlier modules of the same concept (or earlier grade modules). Teachers and students can message in the app.</td>
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<td><strong>Digit Whiz</strong></td>
<td>Digit Whiz Inc</td>
<td>Primary, Junior, Intermediate, Senior</td>
<td>Number Sense and Numeration, Data Management and Probability, Geometry and Spatial Sense, Measurement, Patterning and Algebra</td>
<td>✓ Problem Solving, ✓ Reasoning / Proving, ✓ Reflecting, ✓ Selecting Tools / Computational Connecting, ✓ Representing / Modelling, ✓ Communicating</td>
<td>✓</td>
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</table>
### DigitWhiz

**App Icon**

**App Name**
DigitWhiz

**Developer:**
DigitWhiz Inc

**Overview:**
How it Works

- **Placement:** analytics pinpoint exactly which math skills kids know and which they need to learn.
- **Practice:** prescribe adaptive games that make practice fun!

**Cost:** $0.00

<table>
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<th>Grade Band</th>
<th>Primary</th>
<th>Junior</th>
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<th>Senior</th>
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**Math Strand:**
- Number Sense and Numeration
- Data Management and Probability
- Geometry and Spatial Sense
- Measurement
- Patterning and Algebra

**Mathematical Processes Achieved:**
- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational Connecting
- Representing / Modelling
- Communicating

**Advantages for Teaching:** Focus on key foundational skills in five areas:
- Multiplication
- Division
- Integer Operations
- Like Terms
- Solving Equations

**Disadvantages for Teaching:**

**Suggested Use:** Practice based in the classroom, can be used collaboratively and as an activation using the whiteboard. Students can practice at home and teacher can track usage and progress on classlist.

### DragonBox Algebra 12+

**App Icon**

**App Name**
DragonBox Algebra 12+

**Developer:**
WeWantToKnow AS

**Overview:**
DragonBox Algebra 12+ converts the development of algebraic thinking into a problem solving game whereby students must isolate the variable (the dragon). Variables and constants are represented by creatures that are removed through algebraic

**Cost:** $4.99

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**Math Strand:**
- Number Sense and Numeration
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**Mathematical Processes Achieved:**
- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational Connecting
- Representing / Modelling
- Communicating

**Advantages for Teaching:**
The game slowly introduces variables and constants without using numbers; students focus on the algebraic reasoning rather than computing numbers. Students may have difficulty seeing the math at work.

**Disadvantages for Teaching:**

**Suggested Use:** As practice for students that require a differentiated approach when working with equations. As the game continues, the experiences gradually become more complex.
### Factor Samurai

**App Name:** Factor Samurai  
**Developer:** Third Rail LLC  
**Cost:** $2.99

**Overview:** Factor Samurai is a game that gets students to cut composite numbers down to their prime factors. Like the app Fruit Ninja, numbers are tossed about the screen and must be cut down to prime! Level of difficulty is chosen by the player.

**Math Strand:** Number Sense and Numeration, Data Management and Probability, Geometry and Spatial Sense, Measurement, Patterning and Algebra

**Mathematical Processes Achieved:** Problem Solving, Reasoning / Proving, Reflecting, Selecting Tools / Computational Connecting

**Advantages and Disadvantages for Teaching:** Student become familiar with the concept of factors, composite numbers, and prime numbers.

**Purpose:** (Why This App?) Identify Student Errors

**App's Key Features:** Game Play, Game Principled

**Grade Band:** Primary, Junior, Intermediate, Senior

**Suggested Use:** Exploring prime factorization and becoming familiar with primes (e.g., 2, 3, 5, 7, 11, 13, 17, etc.). Once students have learned to prime-factorize, the app provides ample practice at 3 levels of difficulty.

### Front Row

**App Name:** Front Row  
**Developer:** Front Row Education, Inc.  
**Cost:** $0.00

**Overview:** Front Row is a practice app that has a large library of questions ranging across the strands. Students earn coins for correctly solving EQAO-style questions. Teachers can choose strands and level of difficulty or they can be chosen based on performance.

**Math Strand:** Number Sense and Numeration, Data Management and Probability, Geometry and Spatial Sense, Measurement, Patterning and Algebra

**Mathematical Processes Achieved:** Problem Solving, Reasoning / Proving, Reflecting, Selecting Tools / Computational Connecting

**Advantages and Disadvantages for Teaching:** Adheres to Common Core Standards (US). Wealth of questions and iterations (28,000). Videos to help students that are struggling with concepts. Students able to write notes and work out problems. Track student development.

**Purpose:** (Why This App?) Identify Student Errors

**App's Key Features:** Game Play, Game Principled

**Grade Band:** Primary, Junior, Intermediate, Senior

**Suggested Use:** Independent practice; small group practice
<table>
<thead>
<tr>
<th><strong>App Name</strong></th>
<th>GeoBoard</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Developer</strong></td>
<td>The Math Learning Centre</td>
</tr>
<tr>
<td><strong>Overview</strong></td>
<td></td>
</tr>
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<td><strong>Cost</strong></td>
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| **Advantages and Disadvantages for Teaching:** | Requires practice and exploration to master the functions of the app. Guides and Tutorials to use the app are available online. Completed worksheets can be exported and shared. |

| **Suggested Use:** | Primary function is for use with Geometry. Since it is essentially a virtual graphing tool, this app is well suited for concept exploration and development. |

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<th><strong>App Icon</strong></th>
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<tr>
<td><strong>Developer</strong></td>
<td>International GeoGebra Institute</td>
</tr>
<tr>
<td><strong>Overview</strong></td>
<td>GeoGebra is a worksheet app that allows students to create and manipulate geometric constructs such as (but not limited to): lines, line bisection, circles, squares, points on a Cartesian Plane, and much more. Online and Chrome versions available.</td>
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<tr>
<td>Number Sense and Numeration</td>
<td>Problem Solving</td>
<td>Teacher, parent or educator may sign up to receive free solution keys for games. Fill in the form at <a href="http://www.playply.com/solutions-request">http://www.playply.com/solutions-request</a>. GeometrIQ comes in 3 packs: Pk 0: Level 0-5: Free; Pk 1: 44 levels &amp; Pk 2 has 50 levels: Each Cost: $1.99.</td>
<td>Can be used as a collaborative whole class introduction if set up with senteo for multiple choice. Diagnostic with tracking capabilities.</td>
<td></td>
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### Overview:
GeometrIQ is an interactive game presenting geometrical problems covering a wide range of topics such as parallel & perpendicular lines, triangles, circles, quadrilaterals, perimeter, and areas and angles.

### Purpose:
(Why This App?)
This app provides an engaging way to practice geometry concepts with multiple choice, problem solving, and reasoning questions. It is suitable for primary, junior, intermediate, and senior grade levels.

### App's Key Features:
- Game Play
- Concept Exploration
- Scaffolding
- Open Response
- Multiple Choice

### Grade Band:
- Primary
- Junior
- Intermediate
- Senior

### Cost:
$0.00

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<tr>
<td>Number Sense and Numeration</td>
<td>Problem Solving</td>
<td>Hundreds of Gizmos to go through; its best to pursue the gallery and try the gizmos online. Requires login. Does not have the exploration guide or student tracking like the online version.</td>
<td>Plan questions that can be used within the limits of the gizmo to allow students to explore the math concepts in action. Students can then discuss and record their findings for deeper engagement.</td>
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### Overview:
The iPad app version of the ExploreLearning Gizmos allows students to explore concepts by selecting, creating, and inputting data. Interactive visualizations and virtual manipulatives help students see how the mathematics works.

### Purpose:
(Why This App?)
This app provides an engaging way to practice mathematical concepts with multiple choice, problem solving, and reasoning questions. It is suitable for primary, junior, intermediate, and senior grade levels.

### App's Key Features:
- Game Play
- Concept Exploration
- Scaffolding
- Open Response
- Multiple Choice

### Grade Band:
- Primary
- Junior
- Intermediate
- Senior

### Cost:
$0.00

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### Overview:
The ExploreLearning Gizmos app provides an engaging way to practice mathematical concepts with multiple choice, problem solving, and reasoning questions. It is suitable for primary, junior, intermediate, and senior grade levels.

### Purpose:
(Why This App?)
This app provides an engaging way to practice mathematical concepts with multiple choice, problem solving, and reasoning questions. It is suitable for primary, junior, intermediate, and senior grade levels.

### App's Key Features:
- Game Play
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### Cost:
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<td>□</td>
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<tr>
<td>Data Management and Probability</td>
<td>□</td>
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<tr>
<td>Geometry and Spatial Sense</td>
<td>□</td>
<td>□</td>
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<tr>
<td>Measurement</td>
<td>□</td>
<td>□</td>
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</tr>
<tr>
<td>Patterning and Algebra</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade Band:</th>
<th>App's Key Features:</th>
<th>Purpose:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>Game Play</td>
<td>Concept Development</td>
</tr>
<tr>
<td>Junior</td>
<td>Game Principled</td>
<td>Concept Exploration</td>
</tr>
<tr>
<td>Intermediate</td>
<td>Scaffolding</td>
<td>Practice</td>
</tr>
<tr>
<td>Senior</td>
<td>Open Response</td>
<td>Tool/Manipulative</td>
</tr>
<tr>
<td></td>
<td>Multiple Choice</td>
<td>Student Tracking</td>
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<td></td>
<td></td>
<td>EQAO Style</td>
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<td></td>
<td></td>
<td>Identify Student Errors</td>
</tr>
</tbody>
</table>

**Overview:**
In Hands-On Equations 1, students try to figure out the value of pawns on a balance scale. Students watch videos for instructions and then attempt to balance the problem scale. This app is part of a series (1-3) and has a lite version (free) of part 1.

**Advantages and Disadvantages for Teaching:**
- Forces students to watch an instructional video before they can attempt to work with the equations.

**Suggested Use:**
Used after lessons to further clarification on algebraic topics and for practice as the student progresses their learning.

---

**App Name:** Hands-On Equations 2 - The Fun Way to L

**Developer:** Hands On Equations

**Overview:**
In Hands-On Equations 2, students try to figure out the value of pawns on a balance scale, but now they involve integers (Part 1 does not) and 2 different colored pawns. Students watch videos for instructions and then attempt to balance the problem scale.

**Advantages and Disadvantages for Teaching:**
- Forces students to watch an instructional video before they can attempt to work with the equations. Only 5-8 practice items.

**Suggested Use:**
Used after lessons to further clarification on algebraic topics and for practice as the student progresses their learning.

---

**Math Strand:**
- Number Sense and Numeration
- Data Management and Probability
- Geometry and Spatial Sense
- Measurement
- Patterning and Algebra

**Mathematical Processes Achieved:**
- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational Connecting
- Representing / Modelling
- Communicating

**Grade Band:**
- Primary
- Junior ✓
- Intermediate ✓
- Senior ✓

**App's Key Features:**
- Game Play
- Game Principled
- Scaffolding
- Open Response
- Multiple Choice

**Purpose:**
(Why This App?)
- Concept Development ✓
- Concept Exploration
- Practice ✓
- Tool/Manipulative
- Student Tracking
- EQAO Style
- Identify Student Errors
### Hands-On Equations 3 - The Fun Way to L

**Developer:** Hands On Equations

**Overview:** In Hands-On Equations 2, student try to figure out the value of pawns on a balance scale. However, now the equations involve the possibility of integers in both the variables and the constants. The number strings also become more complex.

<table>
<thead>
<tr>
<th>Grade Band</th>
<th>App's Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>Game Play, Game Principled, Scaffolding, Open Response</td>
</tr>
<tr>
<td>Junior</td>
<td></td>
</tr>
<tr>
<td>Intermediate</td>
<td>Scaffolding, Open Response, Multiple Choice</td>
</tr>
<tr>
<td>Senior</td>
<td></td>
</tr>
</tbody>
</table>

**Math Strand:**
- Number Sense and Numeration
- Data Management and Probability
- Geometry and Spatial Sense
- Measurement
- Patterning and Algebra

**Mathematical Processes Achieved:**
- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational Connecting
- Representing / Modelling

**Advantages and Disadvantages for Teaching:**
- Forces students to watch an instructional video before they can attempt to work with the equations. Minimal practice.

**Suggested Use:** Used after lessons to further clarification on algebraic topics and for practice, also for students that need more challenges.

### Histograms

**Developer:** Brainingcamp, LLC

**Overview:** Histograms app helps with this concept of data management by aiding in the understanding and use of histograms. Narrated lessons, practice questions, virtual manipulative, and challenge game available.

<table>
<thead>
<tr>
<th>Grade Band</th>
<th>App's Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>Game Play, Game Principled, Scaffolding, Open Response</td>
</tr>
<tr>
<td>Junior</td>
<td></td>
</tr>
<tr>
<td>Intermediate</td>
<td>Scaffolding, Open Response, Multiple Choice</td>
</tr>
<tr>
<td>Senior</td>
<td></td>
</tr>
</tbody>
</table>

**Math Strand:**
- Number Sense and Numeration
- Data Management and Probability
- Geometry and Spatial Sense
- Measurement
- Patterning and Algebra

**Mathematical Processes Achieved:**
- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational Connecting
- Representing / Modelling

**Advantages and Disadvantages for Teaching:**
- Animated interactive examples and guided tutorial help students visualize the concepts.

**Suggested Use:** Struggling students may find the interactive tutorial and manipulative helpful in making sense of histograms. Extra practice for students.
### Isosceles: Geometers Sketchpad

**Developer:** Base 12 Innovations

**Overview:** Isosceles automatically snaps new additions to nearby objects, keeping your drawing accurate so you can focus on the construction. Draw perpendicular bisectors, angle bisectors, altitudes, and other constructions that automatically

<table>
<thead>
<tr>
<th>Math Strand:</th>
<th>Mathematical Processes Achieved:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Sense and Numeration</td>
<td>- Problem Solving</td>
</tr>
<tr>
<td>Data Management and Probability</td>
<td>- Reasoning / Proving</td>
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<tr>
<td>Geometry and Spatial Sense</td>
<td>- Reflecting</td>
</tr>
<tr>
<td>Measurement</td>
<td>- Selecting Tools / Computational Connecting</td>
</tr>
<tr>
<td>Patterning and Algebra</td>
<td>- Representing / Modelling</td>
</tr>
</tbody>
</table>

**Advantages and Disadvantages for Teaching:**

**Grade Band:**
- Primary
- Junior
- Intermediate
- Senior

**App's Key Features:**
- Game Play
- Game Principled
- Scaffolding
- Open Response
- Multiple Choice

**Purpose:**

<table>
<thead>
<tr>
<th>Purpose: (Why This App?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept Development</td>
</tr>
<tr>
<td>Concept Exploration</td>
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<tr>
<td>Practice</td>
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<tr>
<td>Tool/Manipulative</td>
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<tr>
<td>Student Tracking</td>
</tr>
<tr>
<td>EQAO Style</td>
</tr>
<tr>
<td>Identify Student Errors</td>
</tr>
</tbody>
</table>

**Overview:**
Isosceles automatically snaps new additions to nearby objects, keeping your drawing accurate so you can focus on the construction. Draw perpendicular bisectors, angle bisectors, altitudes, and other constructions that automatically

### isolveit: Math Scaled

**Developer:** CAST, inc.

**Overview:** Math Scaled or mscaled is a puzzle game whereby students try to balance shapes on balance scales. The shapes represent unknown quantities and students try to figure out how to balance the scale using all of the shapes provided.

<table>
<thead>
<tr>
<th>Math Strand:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Sense and Numeration</td>
</tr>
<tr>
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<tr>
<td>Geometry and Spatial Sense</td>
</tr>
<tr>
<td>Measurement</td>
</tr>
<tr>
<td>Patterning and Algebra</td>
</tr>
</tbody>
</table>

**Mathematical Processes Achieved:**
- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational Connecting
- Representing / Modelling
- Communicating

**Advantages and Disadvantages for Teaching:**

**Grade Band:**
- Primary
- Junior
- Intermediate
- Senior

**App's Key Features:**
- Game Play
- Game Principled
- Scaffolding
- Open Response
- Multiple Choice

**Purpose:**

<table>
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<th>Purpose: (Why This App?)</th>
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<tr>
<td>EQAO Style</td>
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<tr>
<td>Identify Student Errors</td>
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</tbody>
</table>

**Overview:** Math Scaled or mscaled is a puzzle game whereby students try to balance shapes on balance scales. The shapes represent unknown quantities and students try to figure out how to balance the scale using all of the shapes provided.

**Suggested Use:** The simpler puzzles (2 Strand balance beams) can be used as early as late primary/early junior and the harder puzzles as late as intermediate. Fun way to practice working with equations and determining inequalities.
### Linear Model

**App Icon**

**App Name** Linear Model

**Developer:** Steve Rhine

**Overview:** For students that require more support understanding multiple representations of the same information, the Linear Model app allows students to explore how changes in the formula or graph or table will impact the other two.

**Math Strand:**
- Number Sense and Numeration
- Data Management and Probability
- Geometry and Spatial Sense
- Measurement
- Patterning and Algebra

**Mathematical Processes Achieved:**
- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational Connecting
- Representing / Modelling
- Communicating

**Advantages and Disadvantages for Teaching:**
- This app allows students to enter a linear equation to be graphed, but they can also use the dots on the line to move it around. You can also choose a different starting point for $x$ in the table. Changes can also be made to the graph's scale.

**Suggested Use:** For use during lessons regarding creating, interpreting, and deeply understanding how graphs represent linear equations, and how changes to equations affect the representation of the graph.

**Grade Band:**
- Primary
- Junior
- Intermediate
- Senior

**App's Key Features:**
- Game Play
- Game Principled
- Scaffolding
- Open Response
- Multiple Choice
- Identify Student Errors

---

### Math 42

**App Icon**

**App Name** Math 42

**Developer:** Cogeon GmbH

**Overview:** Math 42 helps students solve problems by presenting intelligent recommendations, showing how to solve a problem, giving detailed, illustrated step by step solutions, and has a Training and Test Mode.

**Math Strand:**
- Number Sense and Numeration
- Data Management and Probability
- Geometry and Spatial Sense
- Measurement
- Patterning and Algebra

**Mathematical Processes Achieved:**
- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational Connecting
- Representing / Modelling
- Communicating

**Advantages and Disadvantages for Teaching:**
- Tracking is only used for the training/test mode. Graphs expressions. Results can be shared with the teacher. Multiple ways to find the solution, detailed responses and graphing can be utilized. Relitively user friendly.

**Suggested Use:** Students can use this app while practicing working with concepts after initial learning or as a study and review app.

**Grade Band:**
- Primary
- Junior
- Intermediate
- Senior

**App's Key Features:**
- Game Play
- Game Principled
- Scaffolding
- Open Response
- Multiple Choice
- Identify Student Errors

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<table>
<thead>
<tr>
<th><strong>Math Animations</strong></th>
<th><strong>Math Evolve</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>App Icon</strong></td>
<td><img src="image1.png" alt="App Icon" /></td>
</tr>
<tr>
<td><strong>App Name</strong></td>
<td><img src="image2.png" alt="App Name" /></td>
</tr>
<tr>
<td><strong>Developer:</strong></td>
<td>Xicheng Dong</td>
</tr>
<tr>
<td><strong>Overview:</strong></td>
<td>Math Animations is a visual glossary app students can use to review how to tackle mathematical concepts. Entries range from basic addition to area of a circle. The app will show how the math works with examples.</td>
</tr>
<tr>
<td><strong>Cost:</strong></td>
<td>$0.99</td>
</tr>
<tr>
<td><strong>Math Strand:</strong></td>
<td>Number Sense and Numeration</td>
</tr>
<tr>
<td><strong>Mathematical Processes Achieved:</strong></td>
<td>Problem Solving</td>
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<tr>
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<td>Reflecting</td>
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<tr>
<td></td>
<td>Representing / Modelling</td>
</tr>
<tr>
<td></td>
<td>Communicating</td>
</tr>
<tr>
<td><strong>Advantages and Disadvantages for Teaching:</strong></td>
<td>Examples only vary by numbers used, but not in alternative methods to solving a problem. Students view the steps by sliding to the next phase of the animation. Students must infer understandings from the visual representation (no audio support).</td>
</tr>
<tr>
<td><strong>Suggested Use:</strong></td>
<td>Review of previously learned concepts from either prior grades or prior units. Reference guide.</td>
</tr>
<tr>
<td><strong>Grade Band:</strong></td>
<td>Primary □</td>
</tr>
<tr>
<td></td>
<td>Junior □</td>
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<tr>
<td></td>
<td>Intermediate □</td>
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<tr>
<td></td>
<td>Senior □</td>
</tr>
<tr>
<td><strong>App's Key Features:</strong></td>
<td>Game Play</td>
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<td></td>
<td>Game Principled</td>
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<td></td>
<td>Scaffolding</td>
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<td>Multiple Choice</td>
</tr>
<tr>
<td><strong>Purpose:</strong></td>
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<tr>
<td></td>
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<td></td>
<td>Identify Student Errors</td>
</tr>
<tr>
<td>App Icon</td>
<td>App Name</td>
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<tr>
<td><img src="image" alt="App Icon" /></td>
<td><strong>Math Pro!!!</strong></td>
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<tr>
<td><img src="image" alt="App Icon" /></td>
<td><strong>Math Rings</strong></td>
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</tbody>
</table>

### Math Strand:
- Number Sense and Numeration
- Data Management and Probability
- Geometry and Spatial Sense
- Measurement
- Patterning and Algebra

### Mathematical Processes Achieved:
- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational Connecting
- Representing / Modelling
- Communicating

### Advantages and Disadvantages for Teaching:
- May not fit within a unit of study; extra practice
- For use with students that require additional practice and/or flexibility in mathematical thinking. Higher puzzles would provide students that need more challenging thinking that opportunity.

### Suggested Use:
- For use with students that require additional practice and/or flexibility in mathematical thinking. Higher puzzles would provide students that need more challenging thinking that opportunity.
### Middle School Math HD

**Developer:** Interactive Elementary

**Overview:** Middle School Math HD is a collection of mini games that span the math strands. Students can watch youtube video lessons before entering the various games. Geoboard manipulative included.

<table>
<thead>
<tr>
<th>Math Strand:</th>
<th>Mathematical Processes Achieved:</th>
<th>Advantages and Disadvantages for Teaching:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Sense and Numeration</td>
<td>Problem Solving</td>
<td>Students can select target specific concepts to practice and be email their progress (targets or whole report card) to parents and teachers.</td>
</tr>
<tr>
<td>Data Management and Probability</td>
<td>Reasoning / Proving</td>
<td></td>
</tr>
<tr>
<td>Geometry and Spatial Sense</td>
<td>Reflecting</td>
<td></td>
</tr>
<tr>
<td>Measurement</td>
<td>Selecting Tools / Computational</td>
<td></td>
</tr>
<tr>
<td>Patterning and Algebra</td>
<td>Connecting</td>
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<tr>
<td></td>
<td>Representing / Modelling</td>
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<tr>
<td></td>
<td>Communicating</td>
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</tr>
</tbody>
</table>

**Grade Band:** Primary, Junior, Intermediate, Senior

**Number Line**

**Developer:** Clarity Innovations

**Overview:** Number Line helps students visualize number sequences and model strategies for addition, subtraction, multiplication, and division. It can be used to represent sequences of numbers, including whole numbers and multiples of a variety of numbers.

<table>
<thead>
<tr>
<th>Math Strand:</th>
<th>Mathematical Processes Achieved:</th>
<th>Advantages and Disadvantages for Teaching:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Sense and Numeration</td>
<td>Problem Solving</td>
<td>Change the scale of the number line to match the needs of the context. No integer support.</td>
</tr>
<tr>
<td>Data Management and Probability</td>
<td>Reasoning / Proving</td>
<td></td>
</tr>
<tr>
<td>Geometry and Spatial Sense</td>
<td>Reflecting</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Communicating</td>
<td></td>
</tr>
</tbody>
</table>

**Grade Band:** Primary, Junior, Intermediate, Senior

**App's Key Features:**
- Game Play
- Game Principled
- Scaffolding
- Open Response
- Multiple Choice

**Purpose:**
- Concept Development
- Concept Exploration
- Practice
- Tool/Manipulative
- Student Tracking
- EQAO Style
- Identify Student Errors

**Suggested Use:** Use during lesson problems as a virtual tool.
**Number Line Manipulative**

**Developer:** Brainingcamp, LLC

**Overview:** This virtual manipulative number line app is a customizable line that allows students to show number sense including whole numbers, integers, display operations, ranges, inequalities, mark points on the line, and allows for free writing.

**Advantages and Disadvantages for Teaching:** Able to have 2 numberlines (above and below) for comparison purposes. Change the scale from whole numbers to fractions or decimals.

**Suggested Use:** Great for use during lessons with integers, multiples, ordering/comparing fractions and to aid in practice of those concepts. Students could also switch back and forth between scales to compare fractions to decimals or vice-versa.

**Grade Band:**
- Primary ✓
- Junior ✓
- Intermediate ✓
- Senior ✓

**Mathematical Processes Achieved:**
- Problem Solving ✓
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational Connecting ✓
- Representing / Modelling
- Communicating

**App's Key Features:**
- Game Play
- Game Principled
- Scaffolding
- Open Response
- Multiple Choice

**Purpose:**
- Concept Development ✓
- Concept Exploration ✓
- Practice
- Tool/Manipulative ✓
- Student Tracking
- EQAO Style
- Identify Student Errors

---

**Number Pieces, by the Math Learning Cen**

**Developer:** Clarity Innovations

**Overview:** Number Pieces is a Base-10 manipulative that helps students develop a deeper understanding of place value while building their computation skills with multi-digit numbers. Students use the number pieces to represent and operate multi-digit numbers.

**Advantages and Disadvantages for Teaching:** Change colours to represent different numbers, annotate on the work canvas, and apply the array mat for multiplication and division practice.

**Suggested Use:** For use with students requiring remediation of number value and to aid in the visualization of value and number operation.

**Grade Band:**
- Primary ✓
- Junior ✓
- Intermediate ✓
- Senior

**Mathematical Processes Achieved:**
- Problem Solving ✓
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational Connecting ✓
- Representing / Modelling
- Communicating

**App's Key Features:**
- Game Play
- Game Principled
- Scaffolding
- Open Response
- Multiple Choice

**Purpose:**
- Concept Development
- Concept Exploration ✓
- Practice
- Tool/Manipulative ✓
- Student Tracking
- EQAO Style
- Identify Student Errors
<table>
<thead>
<tr>
<th><strong>App Icon</strong></th>
<th><strong>App Name</strong></th>
<th><strong>Developer</strong></th>
<th><strong>Overview</strong></th>
<th><strong>Grade Band</strong></th>
<th><strong>Math Strand</strong></th>
<th><strong>Mathematical Processes Achieved</strong></th>
<th><strong>Advantages and Disadvantages for Teaching</strong></th>
<th><strong>Suggested Use</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="App Icon" /></td>
<td><strong>Numbler - Math Game</strong></td>
<td><strong>Brainingcamp</strong></td>
<td>Based on Scrabble, Numbler is a game for students to develop operations skills and algebraic thinking by creating equations and scoring bonus points for placing tiles on bonus squares</td>
<td>Primary [✓] Junior [✓] Intermediate [✓] Senior [✓]</td>
<td>Number Sense and Numeration [✓] Data Management and Probability [ ] Geometry and Spatial Sense [ ] Measurement [ ] Patterning and Algebra [✓]</td>
<td>Problem Solving [✓] Reasoning / Proving [ ] Reflecting [ ] Selecting Tools / Computational Connecting [ ] Representing / Modelling [ ] Communicating [ ]</td>
<td>Students can play as a team, against each other, or play against the computer. Forces students to work with the tiles they are given, and to apply strategy as to where place equations.</td>
<td>Exploration of fractions or practice of comparing and fraction operations after initial classroom learning.</td>
</tr>
<tr>
<td><img src="image2" alt="App Icon" /></td>
<td><strong>Oh NO! Fractions</strong></td>
<td><strong>Curious Hat</strong></td>
<td>Oh no! Fractions is a practice app that works on comparing, adding, subtracting, multiplying, and dividing fractions.</td>
<td>Primary [ ] Junior [ ] Intermediate [✓] Senior [ ]</td>
<td>Number Sense and Numeration [✓] Data Management and Probability [ ] Geometry and Spatial Sense [ ] Measurement [ ] Patterning and Algebra [ ]</td>
<td>Problem Solving [ ] Reasoning / Proving [✓] Reflecting [ ] Selecting Tools / Computational Connecting [ ] Representing / Modelling [ ] Communicating [ ]</td>
<td>Students can simplify fractions before or after comparing or operating on them. Students can justify or visualize a result by utilizing the “Prove It!” function to fill fraction bars.</td>
<td>Exploration of fractions or practice of comparing and fraction operations after initial classroom learning.</td>
</tr>
</tbody>
</table>
### Pattern Blocks

**App Name:** Pattern Blocks  
**Developer:** Brainingcamp, LLC  
**Overview:** The Pattern Blocks virtual manipulative allows every student to have all the blocks they need to model patterns, fractions, geometric shapes, etc. Students can also annotate using the whiteboard function. Students can save a picture of their work.

**Math Strand:**  
- Number Sense and Numeration  
- Geometry and Spatial Sense  
- Measurement  
- Patterning and Algebra

**Mathematical Processes Achieved:**  
- Problem Solving  
- Reasoning / Proving  
- Reflecting  
- Selecting Tools / Computational Connecting  
- Representing / Modelling  
- Communicating

**Advantages and Disadvantages for Teaching:**  
- Change background mat from triangular (for work with fractions) to square grid (for transformations). Save work for sharing with peers or teacher.

**Suggested Use:** Great for use during lessons with fractions, patterns, etc., and to aid in practice of those concepts. Students can use the annotation and save features to justify their responses.

**Grade Band:** Primary ✅  
**App's Key Features:**  
- Game Play  
- Game Principled  
- Scaffolding  
- Open Response  
- Multiple Choice

### Probability Tools

**App Name:** Probability Tools  
**Developer:** Interactive Elementary  
**Overview:** Probability Tools allows students to perform probability trials with spinners, dice, coins, and playing cards. Tools can be customized to fit most contexts.

**Math Strand:**  
- Number Sense and Numeration  
- Geometry and Spatial Sense  
- Measurement  
- Patterning and Algebra

**Mathematical Processes Achieved:**  
- Problem Solving  
- Reasoning / Proving  
- Reflecting  
- Selecting Tools / Computational Connecting  
- Representing / Modelling  
- Communicating

**Advantages and Disadvantages for Teaching:**  
- Customizable card deck, dice, spinners. Some tools automatically calculate probability of curtain events.

**Suggested Use:** An easy way to have multiple probability tools ready at a moments notice to allow students to explore experimemtal probability vs. theoretical probability.

**Grade Band:** Primary ✅  
**App's Key Features:**  
- Game Play  
- Game Principled  
- Scaffolding  
- Open Response  
- Multiple Choice

### Purpose: (Why This App?)

- Concept Development ✅  
- Concept Exploration ✅  
- Practice  
- Tool/Manipulative ✅  
- Student Tracking  
- EQAO Style  
- Identify Student Errors
### Questimate!

**App Icon**

**App Name:** Questimate!

**Developer:** Motion Math Games

**Overview:** Questimate is one of the only apps that focuses on estimation skills in relation to magnitude of number and scale. Students formulate their own inquiry by selecting sentence fragments and then estimating the value of the comparison. In-app purchases.

<table>
<thead>
<tr>
<th>Math Strand:</th>
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</tr>
</thead>
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<tr>
<td>Number Sense and Numeration</td>
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</tr>
<tr>
<td>Data Management and Probability</td>
<td>Reasoning / Proving</td>
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<td>Patterning and Algebra</td>
<td>Representing / Modelling ✓</td>
</tr>
</tbody>
</table>

**Advantages and Disadvantages for Teaching:**

- Estimates are in measurement of length, height, years, time, velocity, and proportion. Reasonability is reinforced; if students are "way off", they can click the "Really?!" option to get information on the items of comparison and adjust their response.

**Suggested Use:** This app would work well for students that require practice in estimation skills, or to explore proportion by comparing everyday objects.

### Sketchpad Explorer

**App Icon**

**App Name:** Sketchpad Explorer

**Developer:** KCP Technologies, Inc.

**Overview:** Sketchpad Explorer is the iPad version of The Geometer's Sketchpad (GSP)! Drag, manipulate, and animate visual mathematics to develop and generalize student understanding. Use the stock library to access any GSP file locally or on the web.

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<td>Patterning and Algebra</td>
<td>Representing / Modelling ✓</td>
</tr>
</tbody>
</table>

**Advantages and Disadvantages for Teaching:**

- Use any GSP file to share lessons with students. Many lesson already created on edugains, OERB, Sketch Exchange, etc.

**Suggested Use:** Exploratory lessons regarding GSS, NSN, DMP, M, and PA.
Thinking Blocks: Fractions

Developer: Math Playground LLC

Overview: Thinking Blocks Addition teaches children how to model and solve word problems involving fractions. Students can track their own progress and display a certificate of that progress.

Math Strand:
- Number Sense and Numeration [✓]
- Data Management and Probability [☐]
- Geometry and Spatial Sense [☐]
- Measurement [☐]
- Patterning and Algebra [☐]

Mathematical Processes Achieved:
- Problem Solving [✓]
- Reasoning / Proving [☐]
- Reflecting [☐]
- Selecting Tools / Computational Connecting [☐]
- Representing / Modelling [☐]
- Communicating [☐]

Advantages and Disadvantages:
Advantages: Supports 6 problem solving models: Finding a fraction, part/total, adding, multiplying and dividing, and fraction of a remainder.

Disadvantages: Supports 6 problem solving models: Finding a fraction, part/total, adding, multiplying and dividing, and fraction of a remainder.

Grade Band:
- Primary [☐]
- Junior [✓]
- Intermediate [✓]
- Senior [☐]

Suggested Use: Exploration and development of concepts after initial inquiry into the topic is completed. Also can be an investigative introduction to proportion and ratio in early junior grades.

Thinking Blocks: Ratios

Developer: Math Playground LLC

Overview: Thinking Blocks Addition teaches children how to model and solve word problems involving ratio and proportion. Part of a Series that includes multiplication, addition, and fractions for younger grades.

Math Strand:
- Number Sense and Numeration [✓]
- Data Management and Probability [☐]
- Geometry and Spatial Sense [☐]
- Measurement [☐]
- Patterning and Algebra [☐]

Mathematical Processes Achieved:
- Problem Solving [✓]
- Reasoning / Proving [☐]
- Reflecting [☐]
- Selecting Tools / Computational Connecting [☐]
- Representing / Modelling [☐]
- Communicating [☐]

Advantages and Disadvantages:
Advantages: Students can track their own progress and display a certificate of that progress. Supports 6 problem solving models: Missing quantity, Difference, Use difference to find quantity, Part:Whole Ratios, 3 quantities, and challenges.

Disadvantages: Supports 6 problem solving models: Finding a fraction, part/total, adding, multiplying and dividing, and fraction of a remainder.

Grade Band:
- Primary [☐]
- Junior [✓]
- Intermediate [✓]
- Senior [☐]

Suggested Use: Exploration and development of concepts after initial inquiry into the topic is completed. Also can be an investigative introduction to proportion and ratio in early junior grades.
## Virtual Manipulatives!

**Developer:** ABCya!

**Overview:** VM: Virtual manipulatives is a Fractions, Decimals, and Percents workspace which allows student to use bars to compare, order, or operate on these three forms of numbers. App also allows students to write in the canvas and capture images of work to share.

<table>
<thead>
<tr>
<th>Grade Band</th>
<th>Primary</th>
<th>Junior</th>
<th>Intermediate</th>
<th>Senior</th>
</tr>
</thead>
</table>

### Advantages and Disadvantages for Teaching:

- Easy to use app that utilizes Fraction, Decimal, and Percent bars that relate proportional pieces to a whole. Pieces can be places to used to order or compare to to model operations.

### Suggested Use:

For use during lessons involving work with Fractions, Decimals, and Percents, and to aid in practice of these topics.

### App's Key Features:

- Game Play
- Game Principled
- Scaffolding
- Open Response
- Multiple Choice

### Purpose:

- Concept Development
- Concept Exploration
- Practice
- Tool/Manipulative
- Student Tracking
- EQAO Style
- Identify Student Errors

### Mathematical Processes Achieved:

- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational
- Connecting
- Representing / Modelling
- Communicating

## WileDmath

**Developer:** Jeffery Wile

**Overview:** WileDMath is a problem bank that goes into a variety of math categories including, algebra, geometry, Pythagorean Theorem, plotting points, graphing, inequalities, etc. Students earn credits to unlock games that continue to work on math concepts.

<table>
<thead>
<tr>
<th>Grade Band</th>
<th>Primary</th>
<th>Junior</th>
<th>Intermediate</th>
<th>Senior</th>
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</table>

### Advantages and Disadvantages for Teaching:

- Students have a canvas space to show their work. Progress can be emailed to parents and teachers. Tag option allows students to target concepts and be given questions randomly on those concepts. Alligned to Common Core Standards.

### Suggested Use:

For use to practice already learned concepts or to use as a diagnostic prior to learning.

### App's Key Features:

- Game Play
- Game Principled
- Scaffolding
- Open Response
- Multiple Choice

### Purpose:

- Concept Development
- Concept Exploration
- Practice
- Tool/Manipulative
- Student Tracking
- EQAO Style
- Identify Student Errors

### Mathematical Processes Achieved:

- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational
- Connecting
- Representing / Modelling
- Communicating
**Wuzzit Trouble**

**Developer:** Brainquake Inc.

**Overview:** Wuzzit Trouble is an app that helps students learn about multiplication, factors, and multiples while solving puzzles, collecting keys and items to score points and stars (like angry birds). The app helps to develop mathematical conceptual thinking skills.

**Math Strand:**
- Number Sense and Numeration
- Data Management and Probability
- Geometry and Spatial Sense
- Measurement
- Patterning and Algebra

**Mathematical Processes Achieved:**
- Problem Solving
- Reasoning / Proving
- Reflecting
- Selecting Tools / Computational Connecting
- Representing / Modelling
- Communicating

**Grade Band:**
- Primary
- Junior
- Intermediate
- Senior

**App’s Key Features:**
- Game Play
- Game Principled
- Scaffolding
- Open Response
- Multiple Choice

**Advantages and Disadvantages for Teaching:**
- Very engaging. The game focuses on solving problems and stays away from computational practice. Gradual increase in difficulty.

**Suggested Use:** Great way to build confidence in problem solving capabilities in students. Can be used with students of all levels.

**Purpose:**
- EQAO Style
- Identify Student Errors
- Concept Development
- Concept Exploration
- Practice
- Tool/Manipulative
- Student Tracking
- Open Response
- Multiple Choice

**Overview:**
Wuzzit Trouble is an app that helps students learn about multiplication, factors, and multiples while solving puzzles, collecting keys and items to score points and stars (like angry birds). The app helps to develop mathematical conceptual thinking skills.