عرض تجربة جامعة ولاية

UTAH
الأمريكية ودورها في تصميم برمجيات تفاعلية

حصل المشروع على دعم من

NSF

المشروع يضم أكثر من ١٠٠ برمجية في محاور
الاعداد
الهندسة
الجبر
الاحصاء
للمرحلتين الابتدائية والمتوسطة

عرض تجربة مدينة الملك عبد العزيز للعلوم والتقنية وبرمجياتها التفاعلية
المستوحاة من مشروع جامعة يوتا الأمريكية

A Brief History

Teachers of mathematics for centuries have helped students understand mathematics using “manipulatives”-- visual objects that help illustrate mathematical relationships and applications. Manipulatives allow students to visually examine, explore and develop concepts.

The National Library of Virtual Manipulatives (NLVM) at Utah State University has transported these powerful teaching tools into the virtual dimension of the computer. The NLVM collection of over ١٠٠ interactive software programs, called “applets,” are an effective means for accelerating and deepening students' understanding of math.

The NLVM development team consists of mathematicians, math educators and instructional design experts at Utah State University.

The National Science Foundation provided funding for creation of the National Library of Virtual Manipulatives and eNLVM.

About the NLVM

The National Library of Virtual Manipulatives (NLVM) is an NSF supported project that began in ١٩٩٩ to develop a library of uniquely interactive, web-based virtual manipulatives or concept tutorials, mostly in the form of Java applets, for mathematics instruction (K-١٢ .emphasis). The project includes dissemination and extensive internal and external evaluation

Learning and understanding mathematics, at every level, requires student engagement. Mathematics is not, as has been said, a spectator sport. Too much of current instruction fails to actively involve students. One way to address the problem is through the use of manipulatives, physical objects that help students visualize relationships and applications. We .can now use computers to create virtual learning environments to address the same goals

There is a need for good computer-based mathematical manipulatives and interactive learning tools at elementary, middle school, and high school levels. Our Utah State University team is building Java-based mathematical tools and editors that allow us to create exciting new approaches to interactive mathematical instruction. The use of Java as a programming .language provides platform independence and web-based accessibility

The NLVM is a resource from which teachers may freely draw to enrich their mathematics classrooms. The materials are also of importance for the mathematical training of both in- .service and pre-service teachers

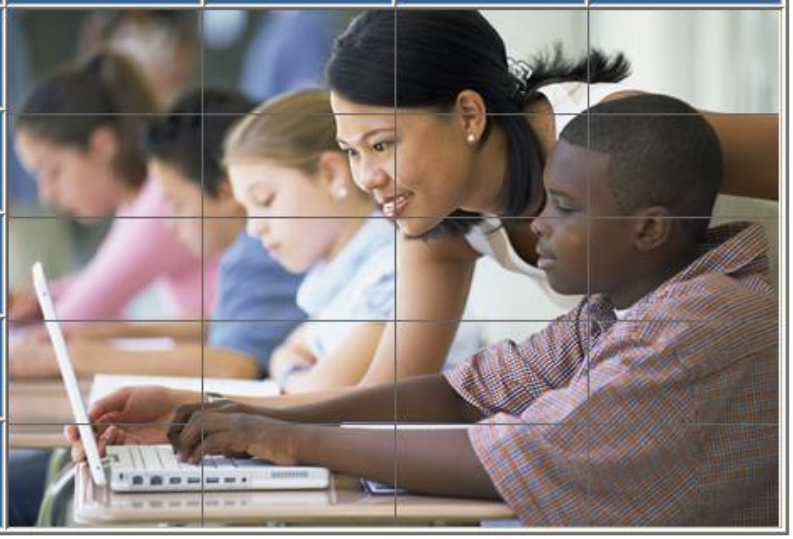
الصفحة الرئيسية

National Library of Virtual Manipulatives

UtahState UNIVERSITY

Virtual Library | About | eNLVM | Buy Now! | Index | Search

Click in the table to list manipulatives for a topic and grade

Index	Pre-K - 2	3 - 5	6 - 8	9 - 12
Number & Operations				
Algebra				
Geometry				
Measurement				
Data Analysis & Probability				

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National Science Foundation Award Number 9819107

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National Library of Virtual Manipulatives

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Download NLVM App, Additional Features, No problems with Java

Number & Operations (Grades Pre-K - 2)

Virtual manipulatives for *Number & Operations*, grades *Pre-K - 2*.

- **Bar Chart** – Create a bar chart showing quantities or percentages by labeling columns and clicking on values.
- **Base Blocks** – Illustrate addition and subtraction in a variety of bases.
- **Base Blocks Addition** – Use base ten blocks to model grouping in addition.
- **Base Blocks Decimals** – Add and subtract decimal values using base blocks.

National Library of Virtual Manipulatives

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Algebra (Grades Pre-K - 2)

Virtual manipulatives for *Algebra*, grades *Pre-K - 2*.

- **Algebra Tiles** – Visualize multiplying and factoring algebraic expressions using tiles.
- **Color Patterns** – Arrange colors to complete a pattern.
- **Fifteen Puzzle** – Solve this virtual version of the classical fifteen puzzle by arranging its tiles.
- **Pattern Blocks** – Use six common geometric shapes to build patterns and solve problems.
- **Pentominoes** – Use the 12 pentomino combinations to solve problems.
- **Polyominoes** – Build and compare characteristics of biominoes, triominoes, quadrominoes, etc.

National Library of Virtual Manipulatives

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Geometry (Grades Pre-K - 2)

Virtual manipulatives for *Geometry*, grades *Pre-K - 2*.

Attribute Blocks – Learn color and shape concepts by sorting blocks.

Attribute Trains – Learn about shape and color patterns of by completing trains of blocks.

Congruent Triangles – Build similar triangles by combining sides and angles.

Geoboard – Use geoboards to illustrate area, perimeter, and rational number concepts.

Geoboard - Isometric – Use geoboard to illustrate three-dimensional shapes.

Ladybug Leaf – Program a ladybug to hide behind a leaf.

National Library of Virtual Manipulatives

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Measurement (Grades 3 - 5)

Virtual manipulatives for *Measurement*, grades *3 - 5*.

Attribute Blocks – Learn color and shape concepts by sorting blocks.

Attribute Trains – Learn about shape and color patterns of by completing trains of blocks.

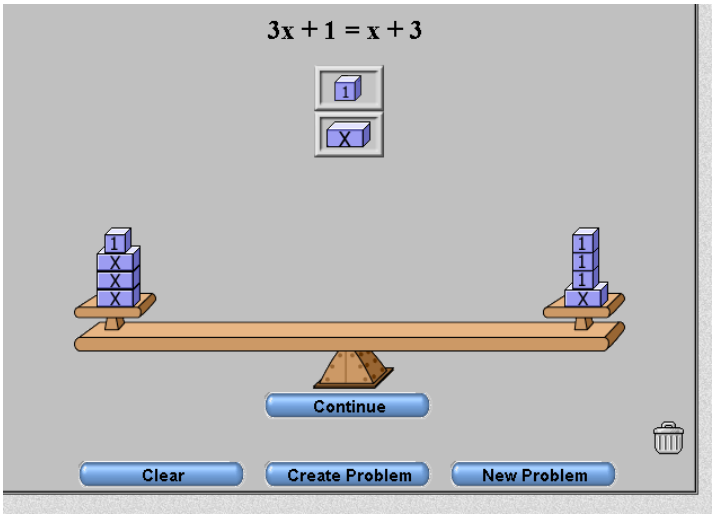
Converting Units – Use a simple system for converting units.

Fill and Pour – Solve puzzles requiring you to fill and pour containers.

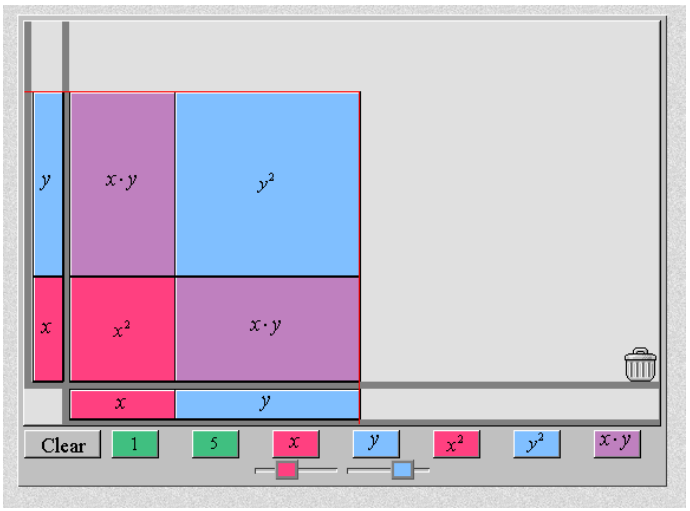
Geoboard – Use geoboards to illustrate area, perimeter, and rational number concepts.

Geoboard - Circular – Use circular geoboards to illustrate angles and degrees.

حل المعادلات



مربع مجموع حدين



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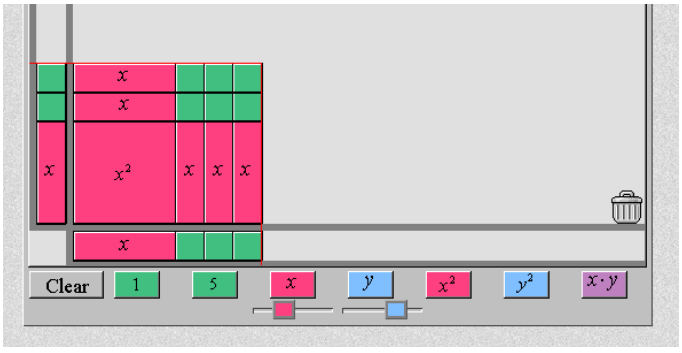

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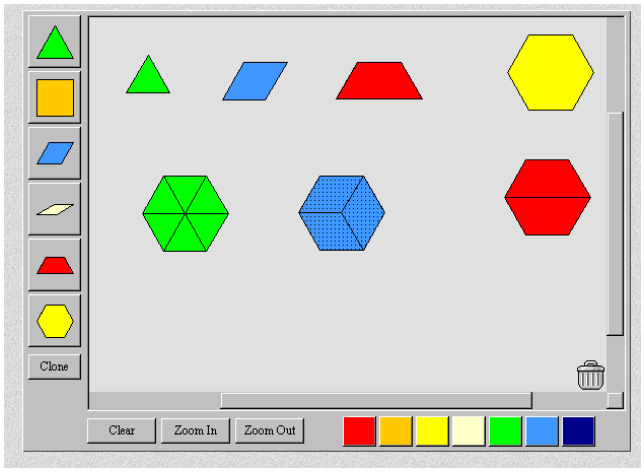

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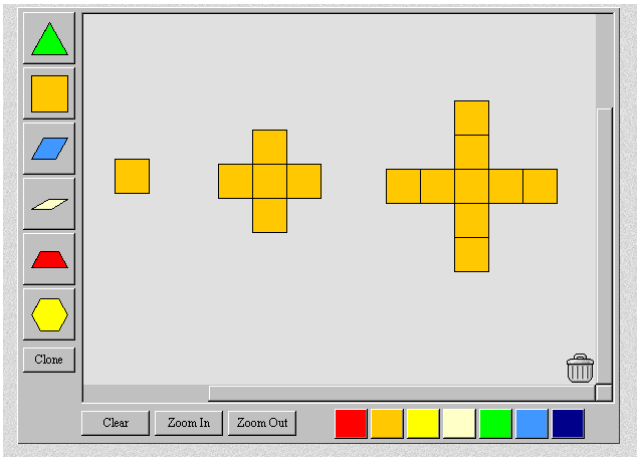
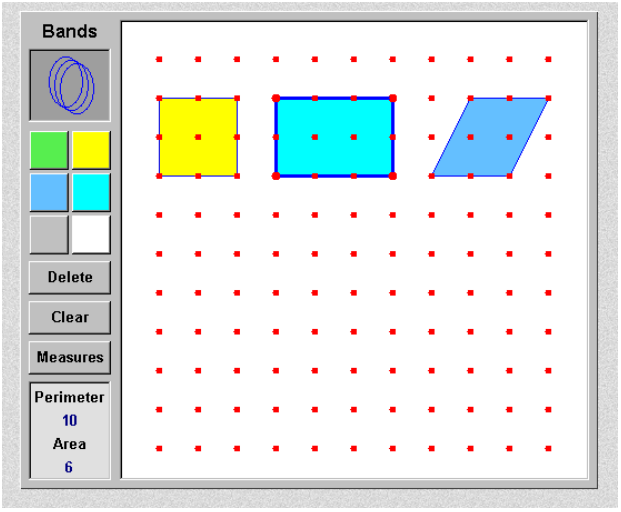


المساحة والمحيط



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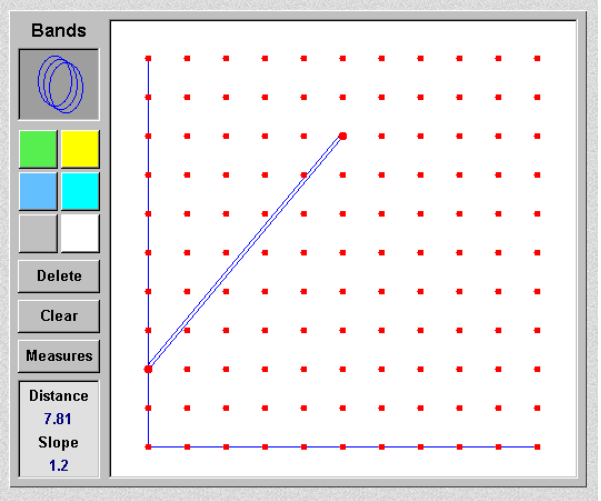

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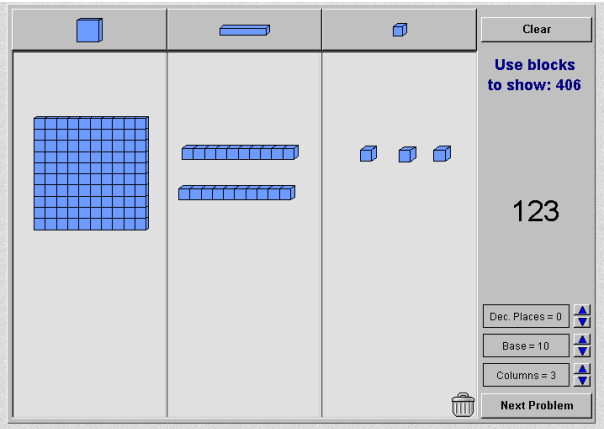
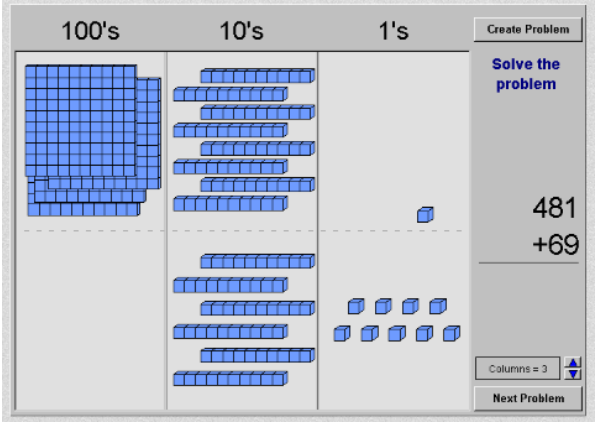


الجمع



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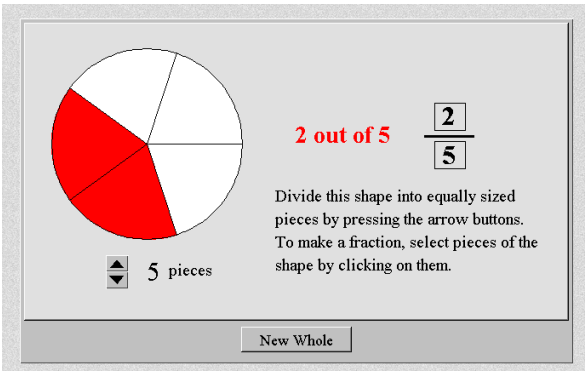

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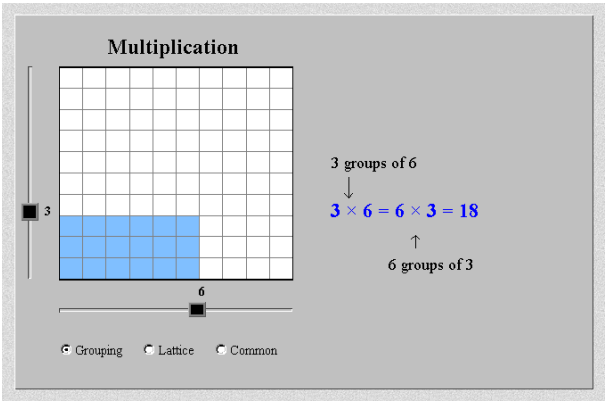

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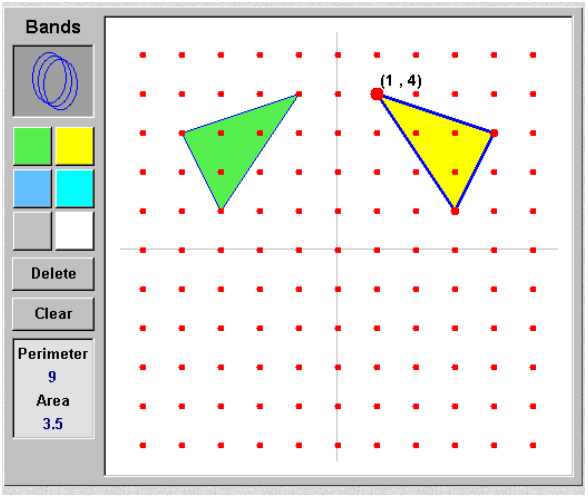

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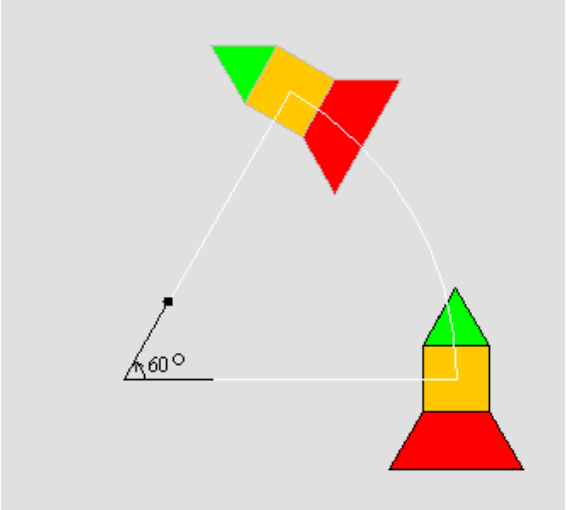

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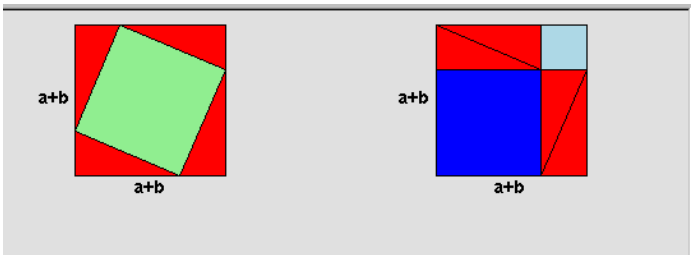
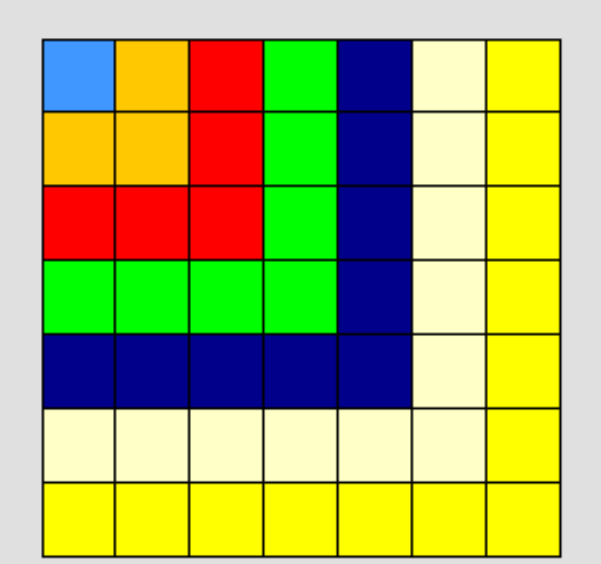


مجموع الأعداد الفردية



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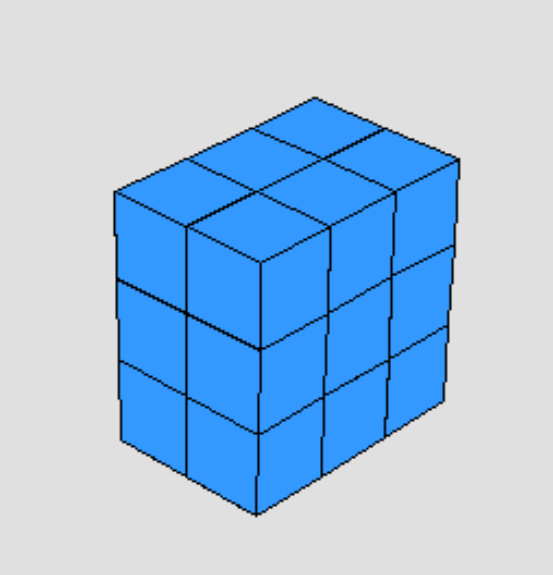

المكتبة الإلكترونية لتعلم الرياضيات

مدينة الملك عبد العزيز للعلوم والتقنية

من نحن - دليل البرمجيات - اتصل بنا - تسجيل - دخول

البرمجيات حليفة المعلم وليست خليفة

- الصفحة الرئيسية
- البرمجيات التفاعلية
- رياضيات رياض الأطفال
- رياضيات الصفوف المبكرة
- رياضيات الصفوف العليا
- رياضيات المرحلة المتوسطة
- الرسم الهندسي

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2	قطع النماذج	شرح	11	شرائح الكسور	شرح
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4	اللوحة الهندسية الدائرية	شرح	13	قطع الكسور	شرح
5	الجزر الخمسة	شرح	14	الميزان الحسابي بقيم سالبة	شرح

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- الرسم الهندسي

رياض الأطفال

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2	مفهوم العدد	شرح
3	الأعداد حتى خمسة	شرح
4	الأعداد حتى العشرة	شرح
5	الأعداد حتى عشرين	شرح

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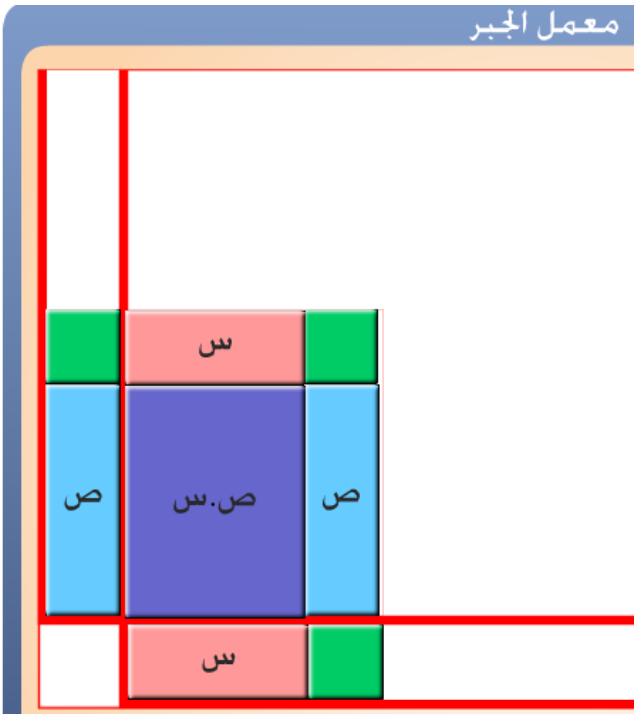
رياضيات الصفوف المبكرة

1	تمثيل الاعداد	شرح
2	تمثيل الأعداد	شرح
3	قطع دينز	شرح
4	تمثيل الجمع	شرح
5	جمع عددين	شرح

قضبان كوازنير
الشرح
الإعدادات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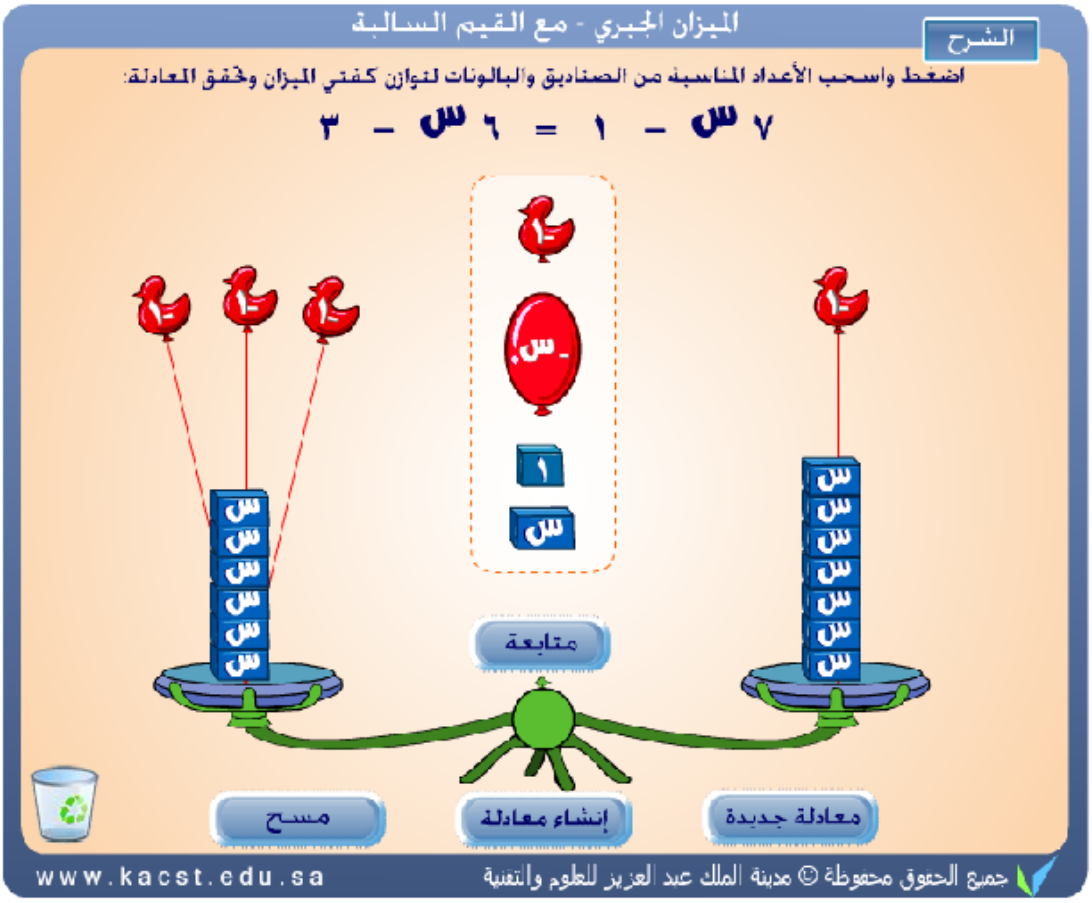
الميزان الجبري - مع القيم السالبة
الشرح
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اللجنة الوطنية للتعليم

ملخص التقرير النهائي

مشروع تعليم الرياضيات للمرحلتين الابتدائية والمتوسطة للبنين والبنات في المملكة العربية السعودية

الباحث الرئيس
الأستاذ الدكتور / سالم بن أحمد سحاب
جامعة الملك عبد العزيز

الباحثون المشاركون

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الدكتور / عبد الرزاق بن أحمد قشر	جامعة أم القرى
الدكتور / عباس بن حسن قندور	جامعة أم القرى