Math through Arts Guide

Action Based Curriculum is a British company that has focused its energy on providing excellent materials, which are approved by 'nasen' - nationally approved for all learners, including those with disabilities, ELL and special education needs.

Action Based Curriculum helps students to access learning through their fun, action based, and fully inclusive crafting and reader activity book materials.

Each mathematics content standard for K-8 is addressed using a combination of Mathematics, Literacy and Science inquiry-based projects with crafting equipment and reader books.

The teacher/writers have created linked personal, social and health education (PSHE) topics to assist teachers in an integrated subject delivery saving much time. Key topics such as **Anti-bullying, Family, Healthy Me, Community**, and **Going Green** can be found within the program. Twenty four topics are included.

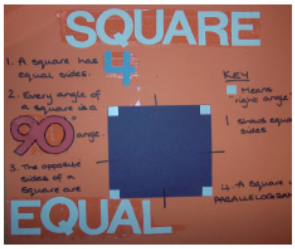
The arts activities are excellent visual assessments. A die cutting machine is used to allow all students to cut perfect shapes. Each student creates a personalized output. Most materials are reusable.

Die Cutting Exercise

Individual Activity

Rufus says:

1. Die cut one of the square die shapes using blue paper.
2. Complete the statements below.
3. Use scissors to cut small squares to represent a right angle
4. Die cut the word, "Square" in white paper.
5. Glue the title "Square", centered, one inch from the top of your background paper.
6. Glue the square die shape two inches below your title.
7. Write or die cut the completed statements. Glue the completed statements around the square.
8. Glue the small squares onto the larger square to represent right angles.
9. Write letters for a key onto the paper by the side of your larger square.



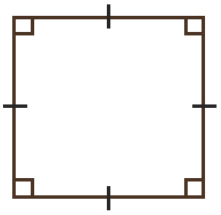
1. A square has [equal] sides.
2. Every angle of a square is a [equal] angle (90°).
3. Opposite sides of a square are [equal].
4. A [square] is a parallelogram.

A series of one hour crafting activities aligned exactly to grade appropriate Mathematics and covering elements of Science and ELA content.

Each crafting exercise is specifically linked to a personal, social and health topic as well as specifically covering the Mathematical content.

Role play is included in some of the activities helping to bring the subject alive for all students.

One teacher wrote **'It not only focused children on the outcome of the activity, but helped them produce work to a very high standard that gave great sensory benefits. It was motivational due to the independence it gave them."**



KEY

- means "right angle"
- show equal sides

Paired Activity

1. Work with a partner and review each other's work.
2. Discuss any differences and ask for help from your teacher if you cannot agree on a particular answer.
3. Draw a design for the square gold medal lid using red, white and blue.
4. Is your shape also a rhombus, and why? Use your isotiles to help you answer.

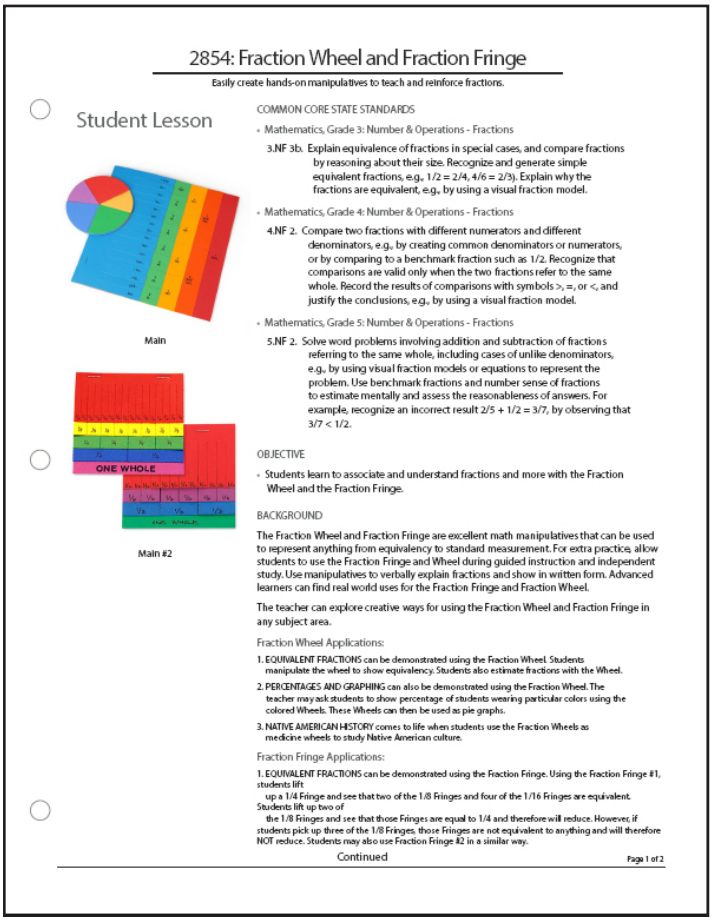
Answer: Yes, because it has equal sides.

You have acted out being a USA designer group who create sample box designs for medal presentation keepsake boxes. You have reviewed shapes of boxes; rhombus, square, rectangle, parallelogram and trapezoid which designers categorize as being special quadrilaterals. You have highlighted the presence of parallel lines, and different angles included or excluded in shapes. You have categorized triangles as being; equilateral, isosceles, or scalene triangles.

Video Arts Guide

Ellison Education is a well-known provider of die cutting machine equipment and die shapes and has created, from scratch, a series of lesson plans for teachers to review or reteach students content of each strand K - 8.
A matching video for the teacher will hugely assist teachers who may be concerned with art.The die cutting machine does all the intricate work, and these communications-based lesson plans with videos will greatly aid all struggling students. Often making models will unravel misconceptions for students.

The low text results in all English Language Learners being able to master the mathematics content through art projects. Ellison Education also includes ELPS links in each lesson plan to ensure continued vocabulary learning.
Students can create the colorful Fraction Fringe and Wheel to represent fractional units, find equivalent fractions, compare fractions, solve fraction word problems and represent ratios. Students can design versatile spirals for any subject area from counting and cardinality and geometric solids. Invite students to make their own spirals for oral reports and presentations. Use die-cuts for guided instruction, group work, independent practice and assessment.



2854: Fraction Wheel and Fraction Fringe

Easily create hands-on manipulatives to teach and reinforce fractions.

Student Lesson

Main

ONE WHOLE

Main #2

COMMON CORE STATE STANDARDS

- Mathematics, Grade 3: Number & Operations - Fractions

3.NF 3b. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model.

- Mathematics, Grade 4: Number & Operations - Fractions

4.NF 2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

- Mathematics, Grade 5: Number & Operations - Fractions

5.NF 2. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.

OBJECTIVE

- Students learn to associate and understand fractions and more with the Fraction Wheel and the Fraction Fringe.

BACKGROUND

The Fraction Wheel and Fraction Fringe are excellent math manipulatives that can be used to represent anything from equivalency to standard measurement. For extra practice, allow students to use the Fraction Fringe and Wheel during guided instruction and independent study. Use manipulatives to verbally explain fractions and show in written form. Advanced learners can find real world uses for the Fraction Fringe and Fraction Wheel.

The teacher can explore creative ways for using the Fraction Wheel and Fraction Fringe in any subject area.

Fraction Wheel Applications:

1. EQUIVALENT FRACTIONS can be demonstrated using the Fraction Wheel. Students manipulate the wheel to show equivalency. Students also estimate fractions with the Wheel.
2. PERCENTAGES AND GRAPHING can also be demonstrated using the Fraction Wheel. The teacher may ask students to show percentage of students wearing particular colors using the colored Wheels. These Wheels can then be used as pie graphs.
3. NATIVE AMERICAN HISTORY comes to life when students use the Fraction Wheels as medicine wheels to study Native American culture.

Fraction Fringe Applications:

1. EQUIVALENT FRACTIONS can be demonstrated using the Fraction Fringe. Using the Fraction Fringe #1, students lift up a 1/4 Fringe and see that two of the 1/8 Fringes and four of the 1/16 Fringes are equivalent. Students lift up two of the 1/8 Fringes and see that those Fringes are equal to 1/4 and therefore will reduce. However, if students pick up three of the 1/8 Fringes, those Fringes are not equivalent to anything and will therefore NOT reduce. Students may also use Fraction Fringe #2 in a similar way.

Continued

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