HIGH MUSEUM OF ART ATLANTA

K-3rd Grade Math and Science Lessons

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Primary Colors and Shapes in Art

Purpose

Use visual skills and hands-on activities to understand color and shape

Georgia Performance Standards

Kindergarten-Grade 3

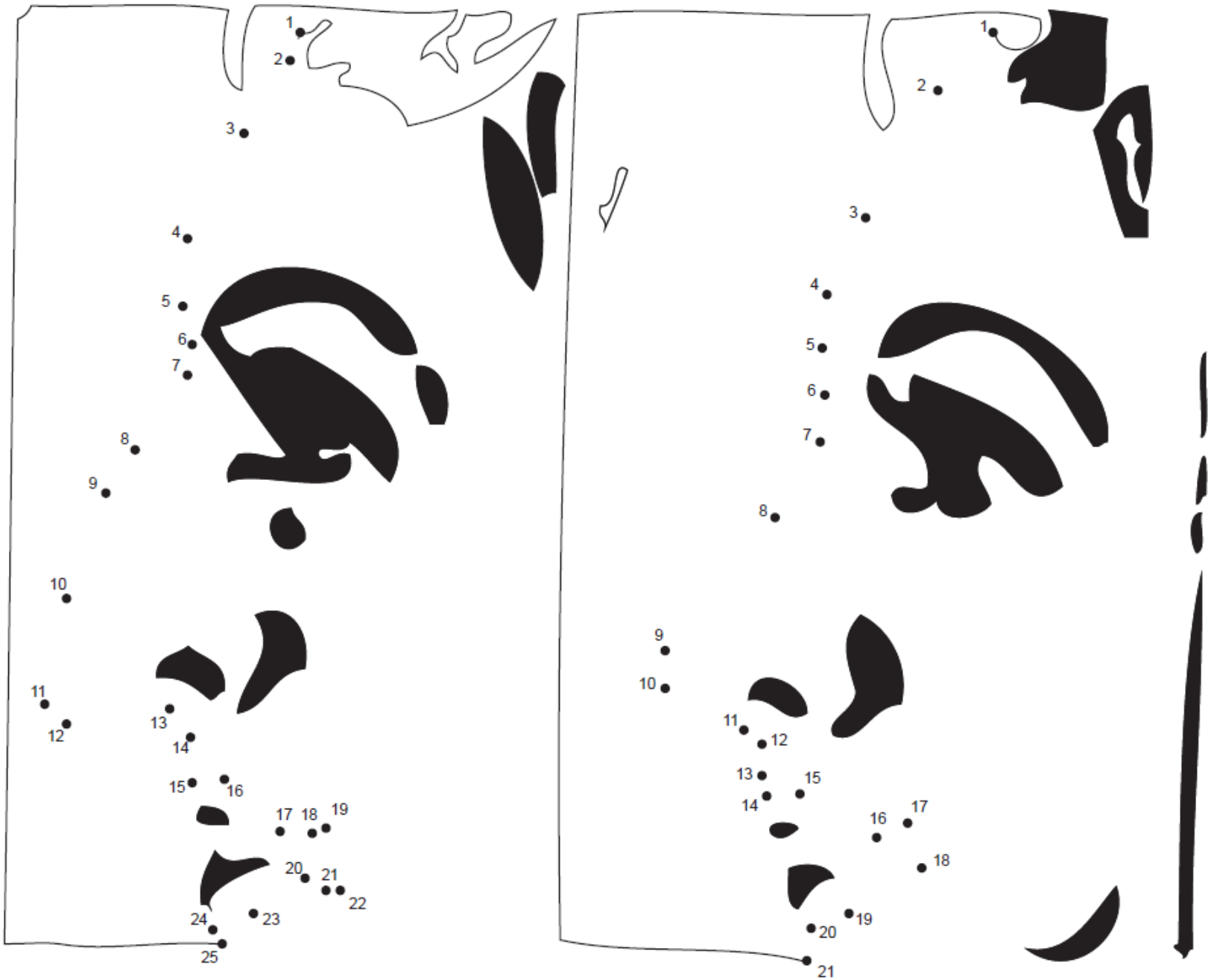
SKCS4, S1CS4, S2CS4, S3CS4	Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters. • Describe changes in size, weight, color, or movement, and note which of their other qualities remains the same.
SKCS5, S1CS5, S2CS5, S3CS5	Students will be able to communicate scientific ideas and activities clearly. • Describe and compare things in terms of number, shape, texture, size, weight, color, and motion.

Activities

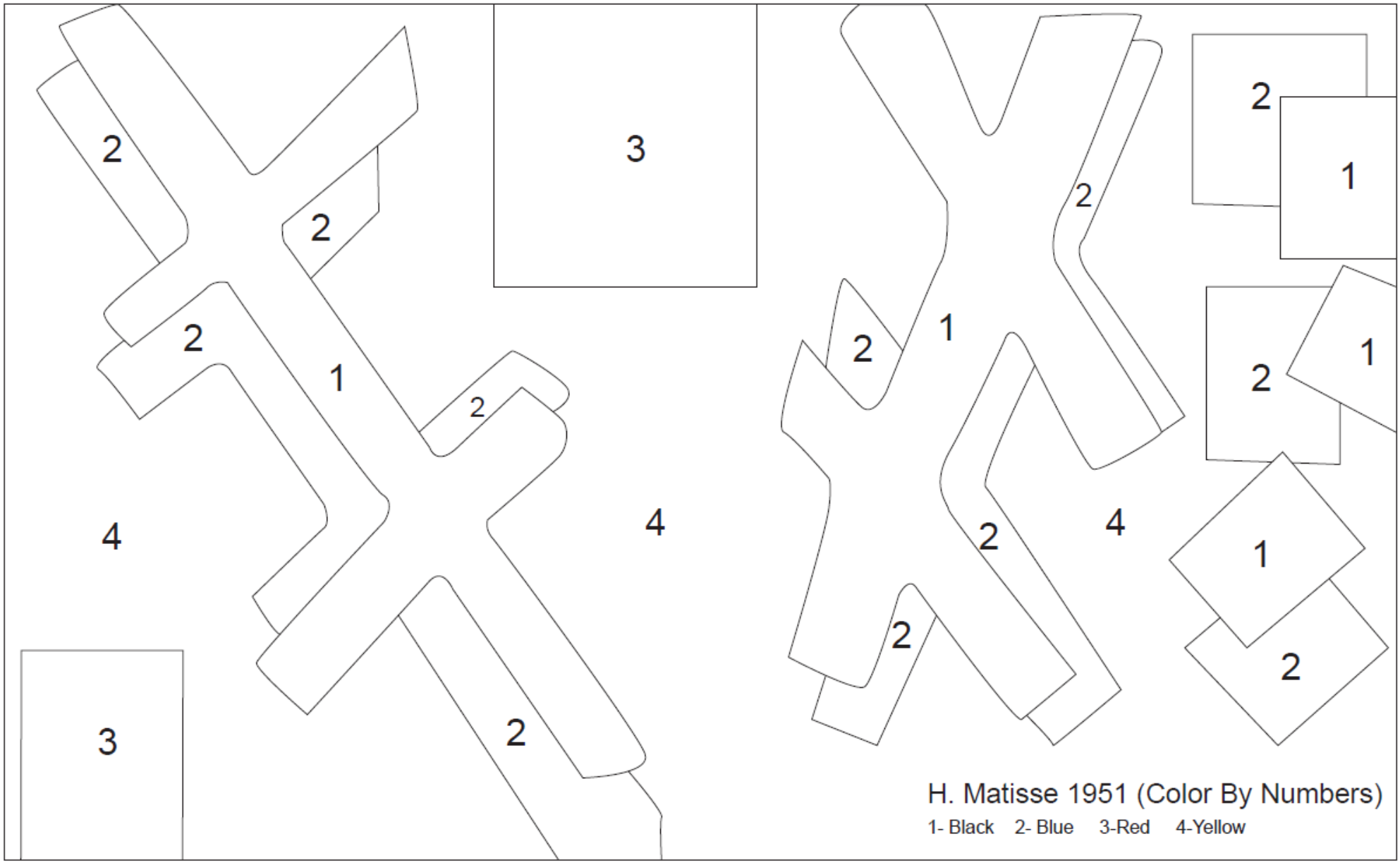
1. Water Jelly Crystals Hands On
2. Connect the Dots Worksheet
3. Color by Numbers Worksheet

Materials Needed

- Water Jelly Crystals: http://www.stevespanglerscience.com/product/1428
- Water Pitcher
- Connect the Dots Worksheet
- Color by Numbers Worksheet



Andy Warhol: Before and After (1961) Connect the Dots Activity



H. Matisse 1951 (Color By Numbers)

1- Black 2- Blue 3-Red 4-Yellow

The Life of a Butterfly

Purpose

Use visual skills and hands-on activities to understand living/non-living organisms and the life cycles of animals.

Applicable Standards

Kindergarten

SKL1 Students will sort living organisms and non-living materials into groups by observable physical attributes.

SKP2 Students will investigate different types of motion (straight, zigzag).

Grade 1

S1L1 Students will investigate the characteristics and basic needs of plants and animals.

Grade 2

S2L1 Students will investigate the life cycles of different living organisms.

Grade 3

S3L1 Students will investigate the habitats of different organisms and the dependence of organisms on their habitat.

Activities

1. Video of The Butterfly Lifecycle (~4 minutes each)
    a. http://video.nationalgeographic.com/video/player/kids/animals-pets-kids/bugs-kids/butterflies-kids.html
    b. http://www1.teachertube.com/viewVideo.php?video_id=124222
2. Contour Drawing of a Caterpillar (Hands-On)
3. Butterfly Wire Art (Hands-On)
4. Balancing Butterfly (Hands-On)
    a. http://www.enchantedlearning.com/crafts/butterfly/balancer/
5. Butterfly Math Activity (Worksheet)

Materials Needed

Video of The Butterfly Lifecycle

- Internet Access

Contour Drawing of a Caterpillar

- Pencils
- Paper

Butterfly Wire Art

- Aluminum Gage (Hobby) Wire (can get at Home Depot)
- Pliers to cut wire (or good scissors)

Balancing Butterfly

- A piece of paper

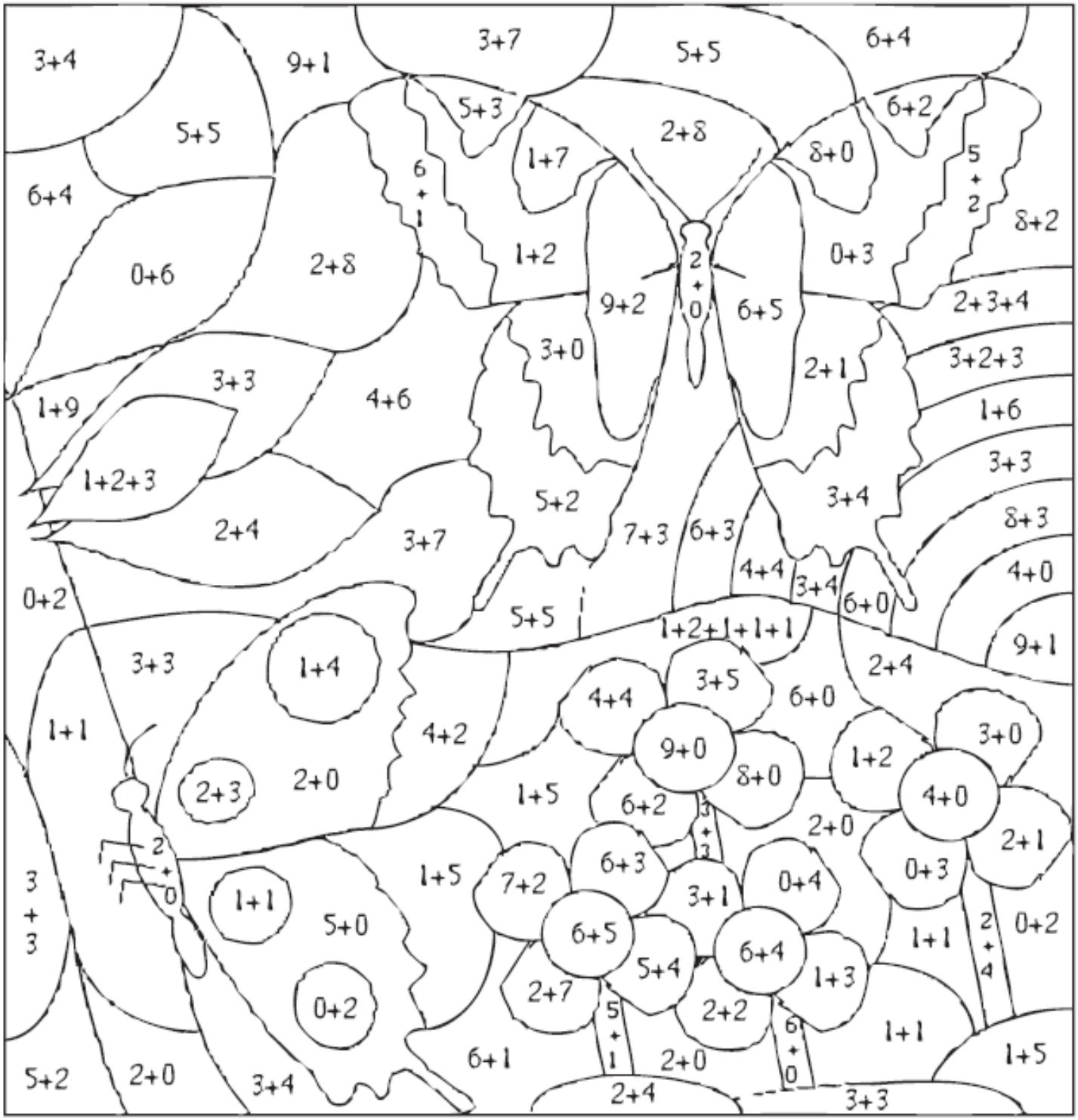
- Thin cardboard (like from a cereal box)
- Scissors
- Pencil
- Markers, crayons, or paint
- Tape
- 2 pennies for each butterfly
- Optional: a small lump of clay and a small stick

Butterfly Math Activity (Worksheet)

Butterflies

NAME _____

2=brown	4=purple	6=green	8=orange	10=light blue
3=pink	5=gray	7=yellow	9=red	11=dark blue



Numbers and More

Purpose

Use visual skills and hands-on activities to understand numerals

Georgia Performance Standards

Kindergarten

MKN1 Students will connect numerals to the quantities they represent.

Grade 1

M1N1 Students will estimate, model, compare, order, and represent whole numbers up to 100.

Grade 2

M2N1 Students will use multiple representations of numbers to connect symbols to quantities.

Grade 3

M3N1 Students will further develop their understanding of whole numbers and decimals and ways of representing them.

Activities

- Embossing Overalls (Hands-On)
- Fractions In Art (Worksheet)
- Find the Numbers (Worksheet)
- Abstract Numbers (Hands-On): http://www.artprojectsforkids.org/2008/09/abstract-numbers.html

Materials Needed

- Embossing Overalls (Hands-On)
- Heavy Grade Aluminum Foil
- Scissors
- Glue
- Construction Paper
- Fractions In Art (Worksheet)
- Find the Numbers (Worksheet)
- Abstract Numbers (Hands-On)
- Paper
- Ruler (or just a straight edge)
- Crayons or markers

Circle the Fractions Worksheet

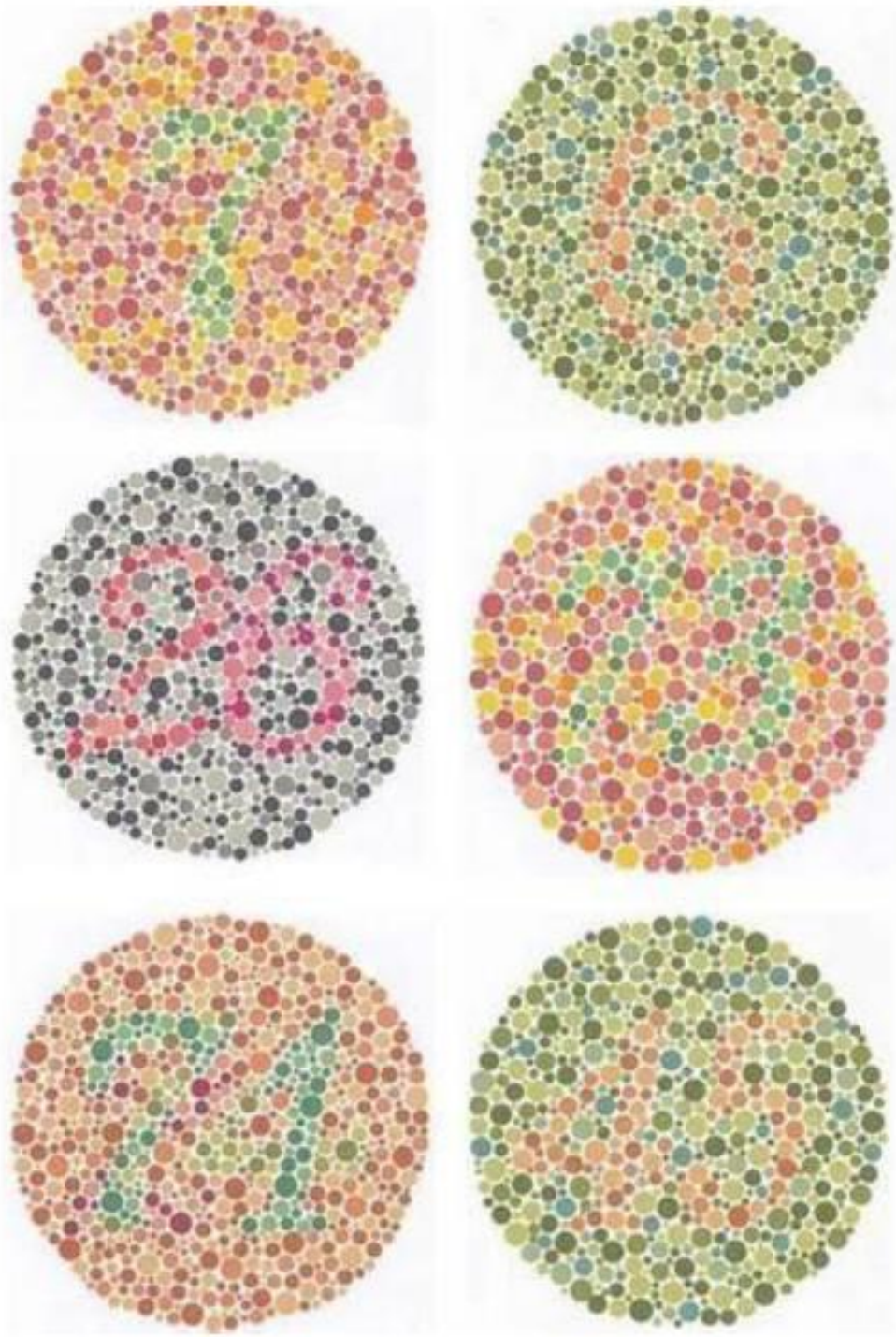
Name _____

Circle 1 / 4 of the soup cans
Color 1 / 2 of the soup cans green
Place a square around 1/8 of the soup cans

Photo Credit: http://www.ryanboden.com/wp-content/uploads/2011/05/Andy-Warhol-Campbells-Soup-prints-700x405.jpg

Finding the Number Worksheet
Name_____

Can you find the number in each circle? Trace it!



Drawing Lines, Planes, and Perspective

Georgia Performance Standards

Kindergarten

MKG1 Students will correctly name simple two and three-dimensional figures, and recognize them in the environment.

Grade 1

M1G1 Students will study and create various two and three-dimensional figures and identify basic figures (squares, circles, triangles, and rectangles) within them.

Grade 2

M2G1 Students will describe and classify plane figures (triangles, square, rectangle, trapezoid, quadrilateral, pentagon, hexagon, and irregular polygonal shapes) according to the number of sides and vertices and the sizes of angles (right angle, obtuse, acute).

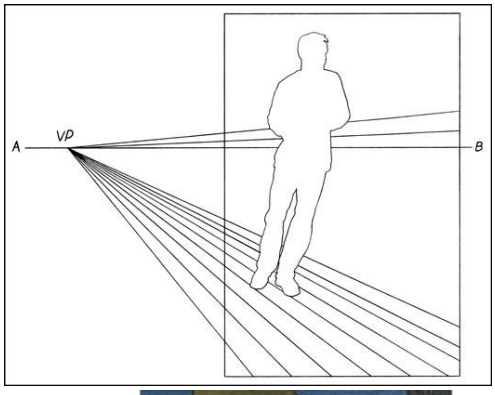
M2G2 Students will describe and classify solid geometric figures (prisms, pyramids, cylinders, cones, and spheres) according to such things as the number of edges and vertices and the number and shape of faces and angles.

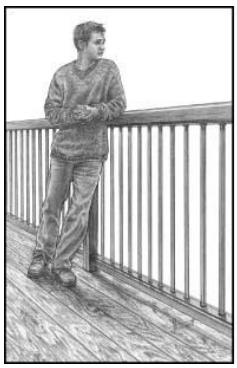
Grade 3

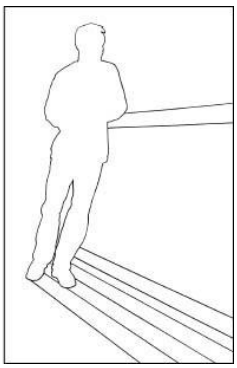
M3G1 Students will further develop their understanding of geometric figures by drawing them. They will also state and explain their properties

Activity

- Discuss de Chirico's and Picasso's work
- Illustrate perspective used to create depth







Casting Shadows

Georgia Performance Standards

Grade 1

S1P1 Students will investigate light and sound.

Grade 2

S2E2 Students will investigate the position of sun and moon to show patterns throughout the year.

Activity

1. Discuss de Chirico's and Brancusi's work.
2. Have students individually go to a separate (and possibly less lit) part of the classroom and trace their portrait's shadow.
3. Show how to cast shadows on geometric objects.

Design Packaging

Georgia Performance Standards

Kindergarten

SKCS4 Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.

SKP1 Students will describe objects in terms of the materials they are made of and their physical properties.

Grade 1

S1CS4 Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.

Grade 2

S2CS4 Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.

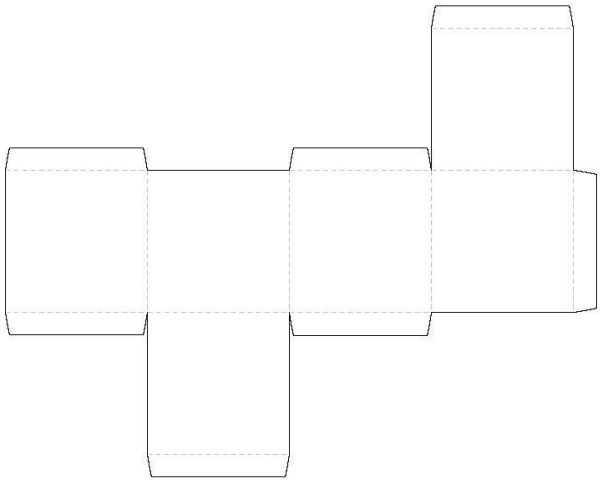
Grade 3

S3CS4 Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.

M3M3 Students will understand and measure the perimeter of geometric figures.

Activity

1. Look at Andy Warhol's work and have students build and design packaging for a product.



Comparison

Georgia Performance Standards

Kindergarten

MKM1 Students will group objects according to common properties such as longer/shorter, more/less, taller/shorter, and heavier/lighter.

SKP1 Students will describe objects in terms of the materials they are made of and their physical properties.

Grade 1

M1M1 Students will compare and/or order the length, height, weight, or capacity of two or more objects by using direct comparison or a nonstandard unit.

Grade 2

M2M1 Students will know the standard units of inch, foot, yard, and metric units of centimeter and meter and measure length to the nearest inch or centimeter.

Activity

1. Look at Brancusi's work; compare and order objects based upon length, capacity, height, and weight.