

1 + 1 = FUN!

Special Area: Preschool

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I. **ABSTRACT**

- A. *1 + 1 = FUN!* will provide participants a better understanding of mathematical reasoning and number sense through a systematic approach using a teacher-made kit. Building upon the child's natural curiosity and desire to explore, the fun learning activities in this kit will address level I and II goals, language of instruction, and assessment techniques. Together, we will learn fun and innovative ways to teach math throughout the year.

II. **OVERVIEW**

- A. Content from the Core Knowledge Preschool Sequence
1. Mathematical Reasoning and Number Sense (pp. 62-70)
 2. All Level I and II goals and skills will be addressed (pp. 62-70)

III. **BACKGROUND KNOWLEDGE**

- A. *Core Knowledge Preschool Sequence*. Charlottesville, VA: Core Knowledge Foundation, 2000. ISBN 1-890517-21-6.
- B. Diffily, Deborah. *5- to 10-Minute Math Activities for Young Learners*. New York, NY: Scholastic, 2002. ISBN 0-439-31890-4.
- C. Sheldon, Ken. *Sing Along and Learn Marvelous Math*. New York, NY: Scholastic, 2001. ISBN 0-439-33343-1

IV. **PREREQUISITE PRIOR KNOWLEDGE FOR STUDENTS**

- A. Not Applicable

V. **RESOURCES**

- A. Materials included in the *1 + 1 = FUN* Math Kit used to teach skills:
1. Children's books
 2. Charts and graphs
 3. Math mats
 4. Manipulatives
 5. Folder games
 6. *Core Knowledge Preschool Sequence* math goals file box

LESSONS OUTLINE

Mathematical Reasoning and Number Sense: The purpose of this presentation is not to detail specific, individual lessons, but to guide participants in moving from the goals and objectives of the *Core Knowledge Preschool Sequence* to multiple activities that teach math skills and can be adapted to different themes. This will allow the teacher to creatively plan activities while addressing the needs of the classroom. The activities will focus on all of the Level I and Level II objectives necessary to master the math goals in the *Preschool Sequence*. These will be taught using a teacher-made Math Kit. The Language of Instruction vocabulary from the Mathematical Reasoning and Number Sense section of the *Preschool Sequence* will be addressed. The Math Kit will give participants a variety of suggestions on ways to teach math skills, which they can use as a springboard for creating their own ideas and materials. Assessments will be conducted using activity probes associated with various skills, teacher observation,

and anecdotal records. Documentation of the child's knowledge will be collected using a variety of techniques. Examples of each child's work will be compiled into a portfolio including written words, drawings, displays, photos, etc. The following ideas will be useful in implementation:

- Skill Cards File Box: Each skill card lists a math skill from the *Preschool Sequence*. Activity probes can appear on the reverse side. The file box also includes a Language of Instruction card.
- Brainstorming Ideas: Each presented activity will incorporate multiple brainstorming ideas used to alter the activity to best fit the needs of the classroom or theme. The teacher will use it as a reference for lesson planning and continue to brainstorm for other ideas.
- Math Journal Cover (Appendix A): These pictures can be used on the front of a notebook for the math center. Children can make notes and illustrate their work.
- Math Center Sign (Appendix B): This sign should be posted at the child's eye level.
- Blank domino template (Appendix C): Using stickers, clip art, or magazine pictures, the teacher can create dominos related to math skills and themes.
- Tangram Pattern Activities (Appendix D): Use to make various shapes.
- Number/Dot Cards (Appendix E)
- Paper Piggy Bank (Appendix F): For use with real pennies, dollars, and quarters.
- Bar Graphs, Double Entry Table and other charts (Appendix G, Appendix M)
- Language of Instruction Card for Math Center (Appendix H): This card shows the teacher-child and teacher-only words. It may be hung for quick reference.
- Math Mats (Appendix I, Appendix J): Use for counting, sorting, and shapes, etc.
- Control Cards (Appendix K): These cards have numerals and the corresponding numbers of dots. Use various counters to place over the dots.
- Venn Diagram (Appendix L): Use to compare and contrast various sets.
- My Colors and Shapes Book (Appendix N): Make a class book to teach these skills.
- Assessment (Appendix O): An example of a Level I assessment tool.
- Number Line-Activity Game to add and subtract.
- Pattern Cards: Use colored dots to make pattern cards that go with multiple materials as counters.
- Talk Picture Puzzle: Use pictures that relate to the theme, and cutting them into 10-18 pieces.
- Sand Paper Numbers: Tracing activity for sensory integration.
- Basic Math Game with Dice
- Literature books with corresponding math activities

VI. HANDOUTS/WORKSHEETS

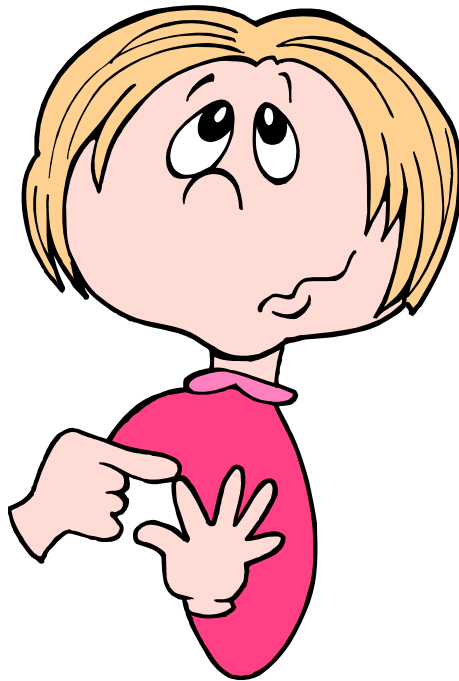
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|----|-------------|--------------------------------|
| A. | Appendix A: | Math Journal Cover |
| B. | Appendix B: | Math Center Sign |
| C. | Appendix C: | Blank Domino Pattern |
| D. | Appendix D: | Tangram Pattern |
| E. | Appendix E: | Number/Dot Cards |
| F. | Appendix F: | Counting Coins Math Mat |
| G. | Appendix G: | Sample Bar Graph |
| H. | Appendix H: | Language of Instruction Card |
| I. | Appendix I: | Color Sorting Math Mat Pattern |
| J. | Appendix J: | Water Scene Math Mat |
| K. | Appendix K: | Control Cards |
| L. | Appendix L: | Sample Venn Diagram |

- M. Appendix M: Sample Double Entry Table
- N. Appendix N: My Colors and Shapes Book
- O. Appendix O: Assessment
- P. Appendix P: Math Related Literature Books

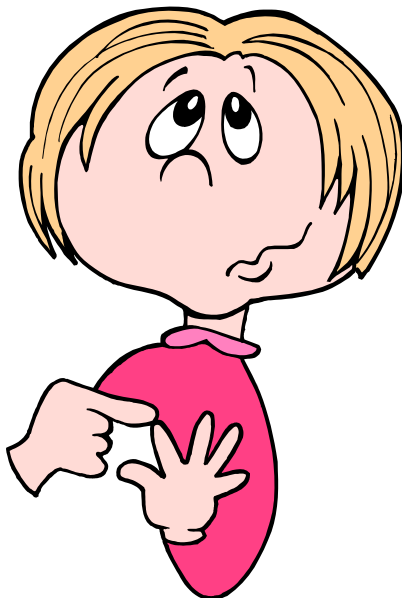
VII. BIBLIOGRAPHY

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Math Journal



Math



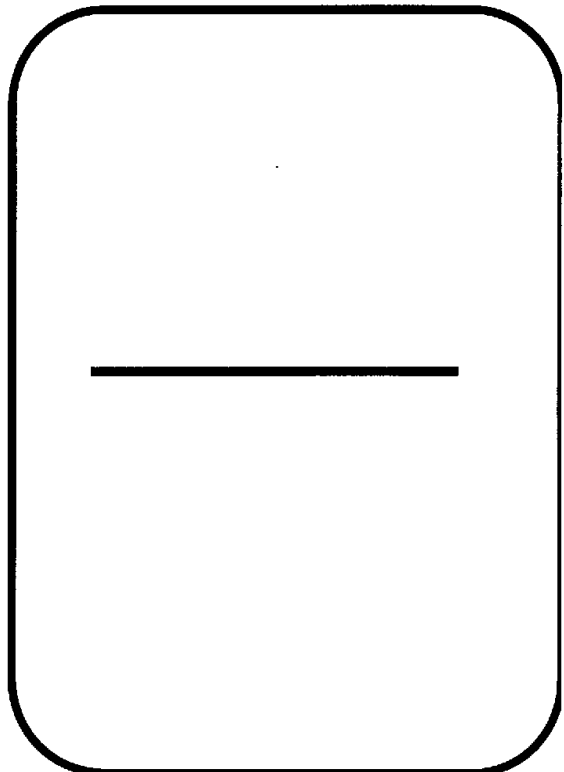
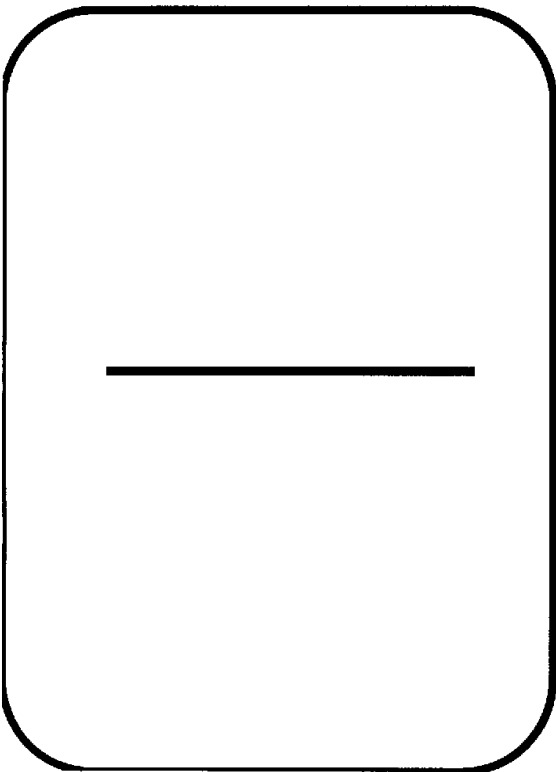
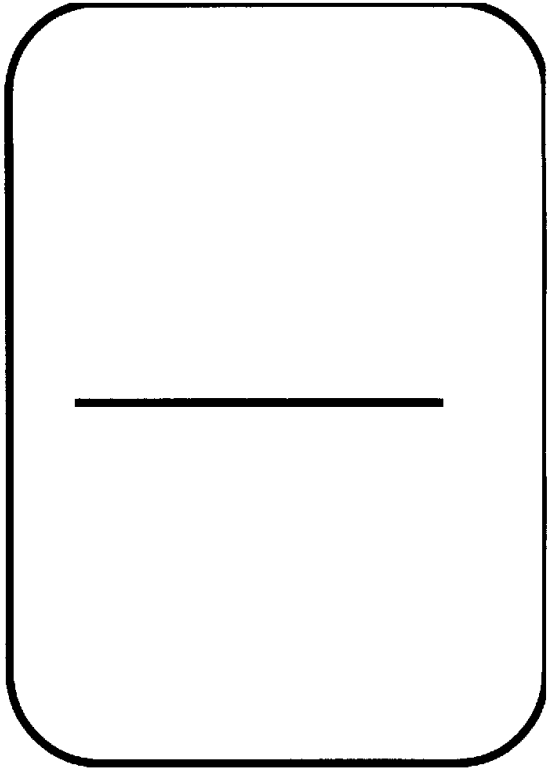
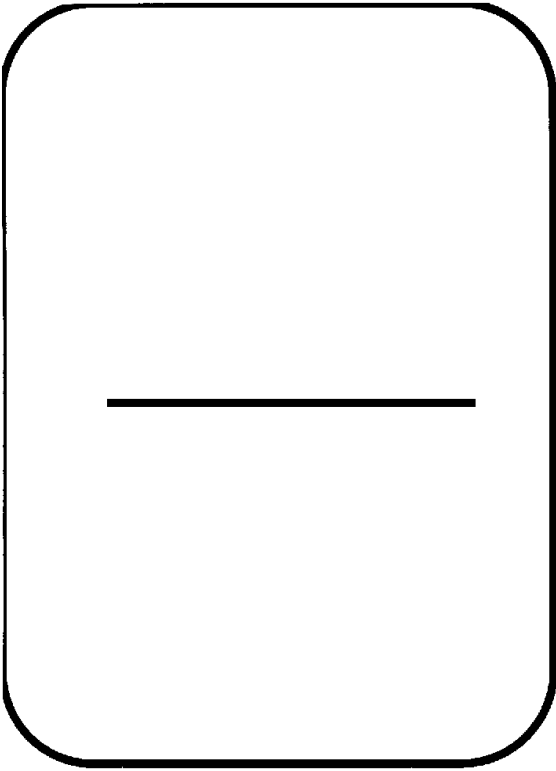
When a child plays here, he/she learns:

- * Eye-hand coordination
- * To see a task through to completion
- * To compare objects that are the same & different
- * To discriminate colors, shapes, size & quantities
- * To sort & classify
- * To make patterns
- * To seriate
- * New vocabulary

Adult can encourage play by:

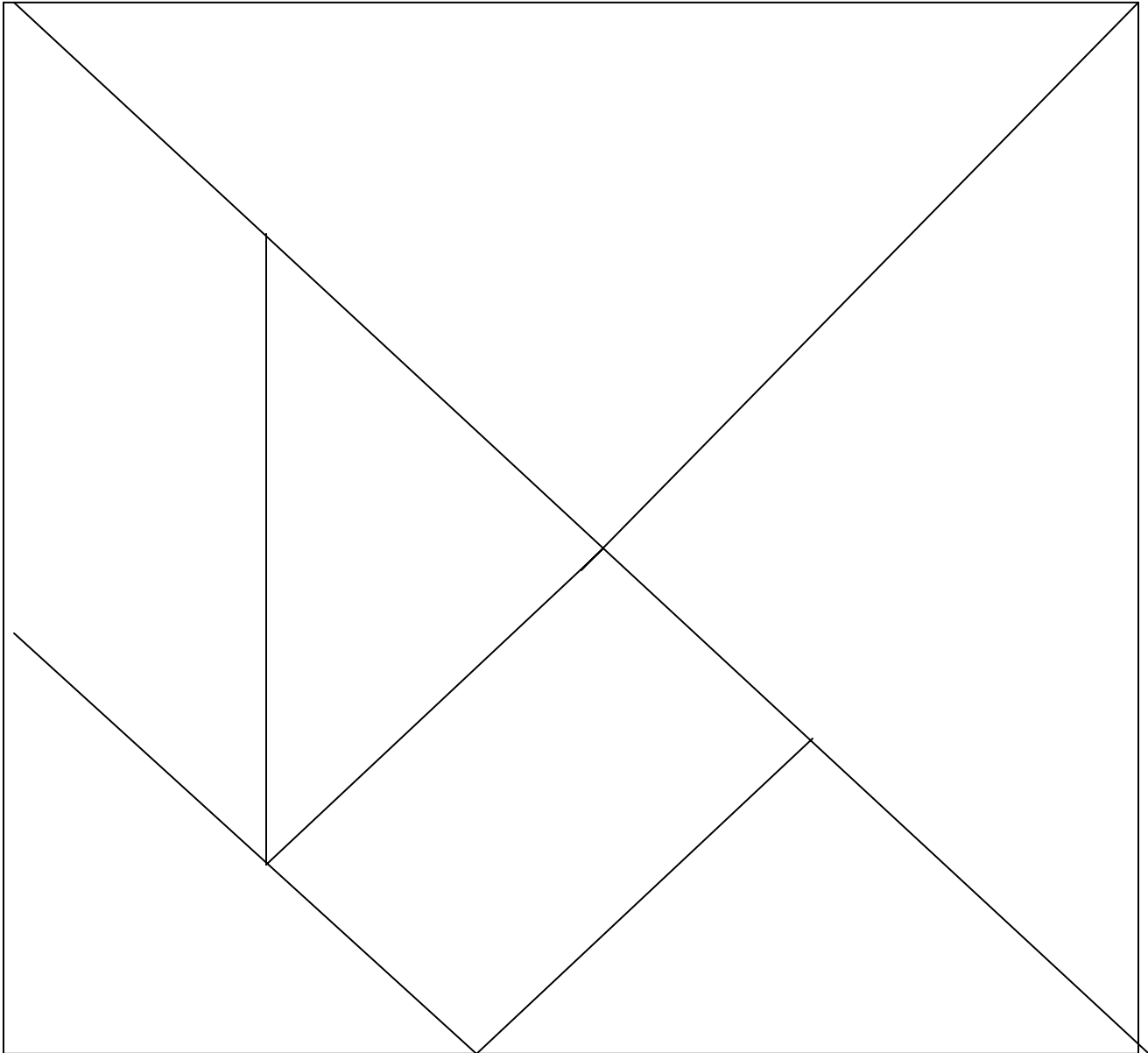
- * Observing children's play & using explicit language to talk about what children are doing ("I see you're making a pattern with three yellow beads and then one red bead.")
- * Asking question to clarify what children are doing
- * Providing feedback
- * Scaffolding children's efforts if they have difficulty (limit choices, provide cues, etc.)

Appendix C: Blank Domino Pattern



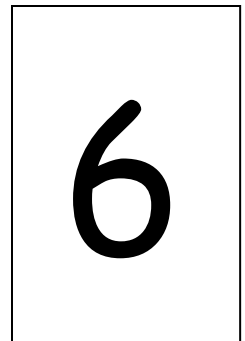
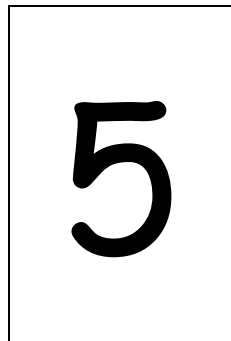
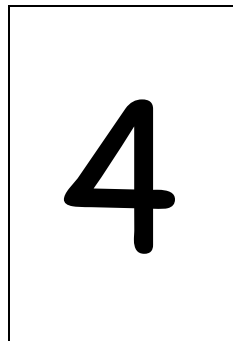
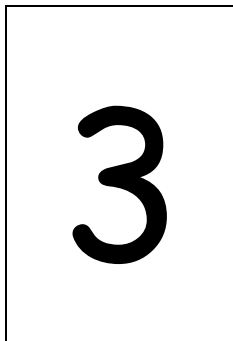
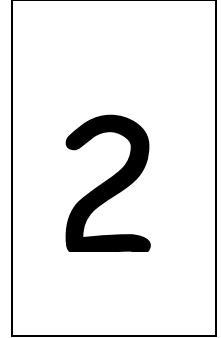
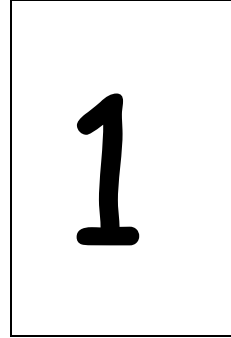
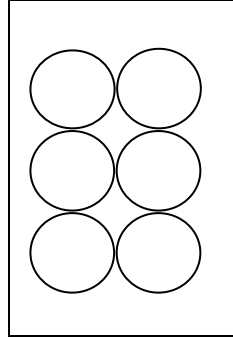
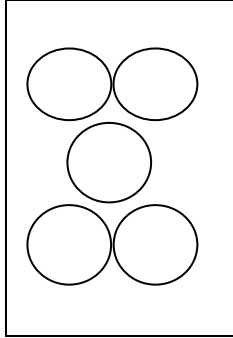
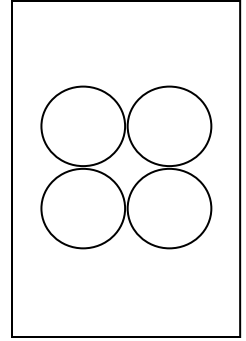
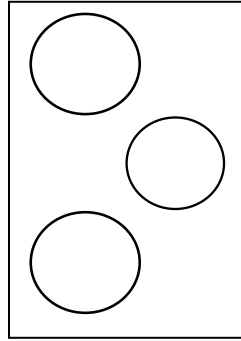
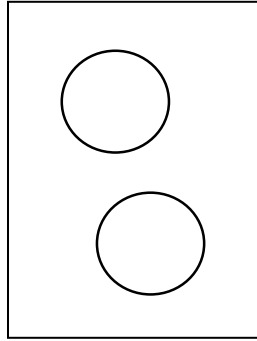
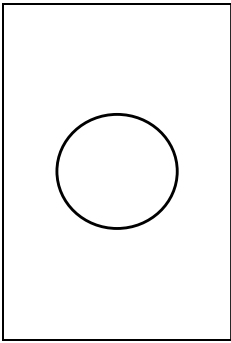
Appendix D: Tangram Pattern

Tangram Pattern

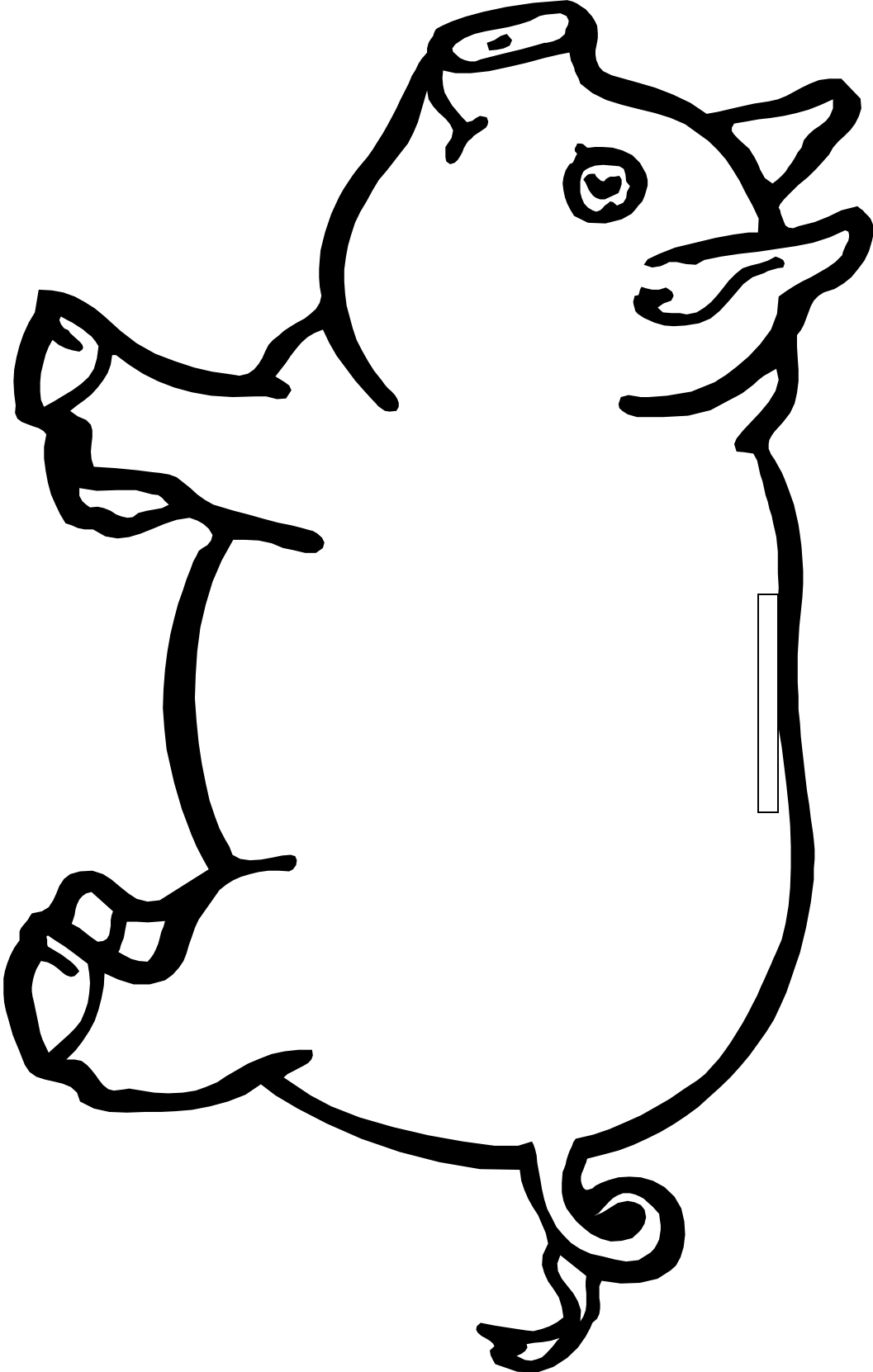


Appendix E: Number/Dot Cards

Number/Dot Cards

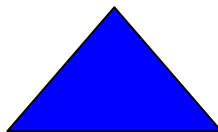
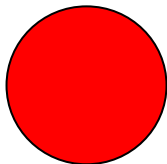


Appendix F: Counting Coins Math Mat



How Many of Each Shape Did You Find?

10				
9				
8				
7				
6				
5				
4				
3				
2				
1				



Appendix H: Language of Instruction Card

Language of Instruction: Teacher and Children

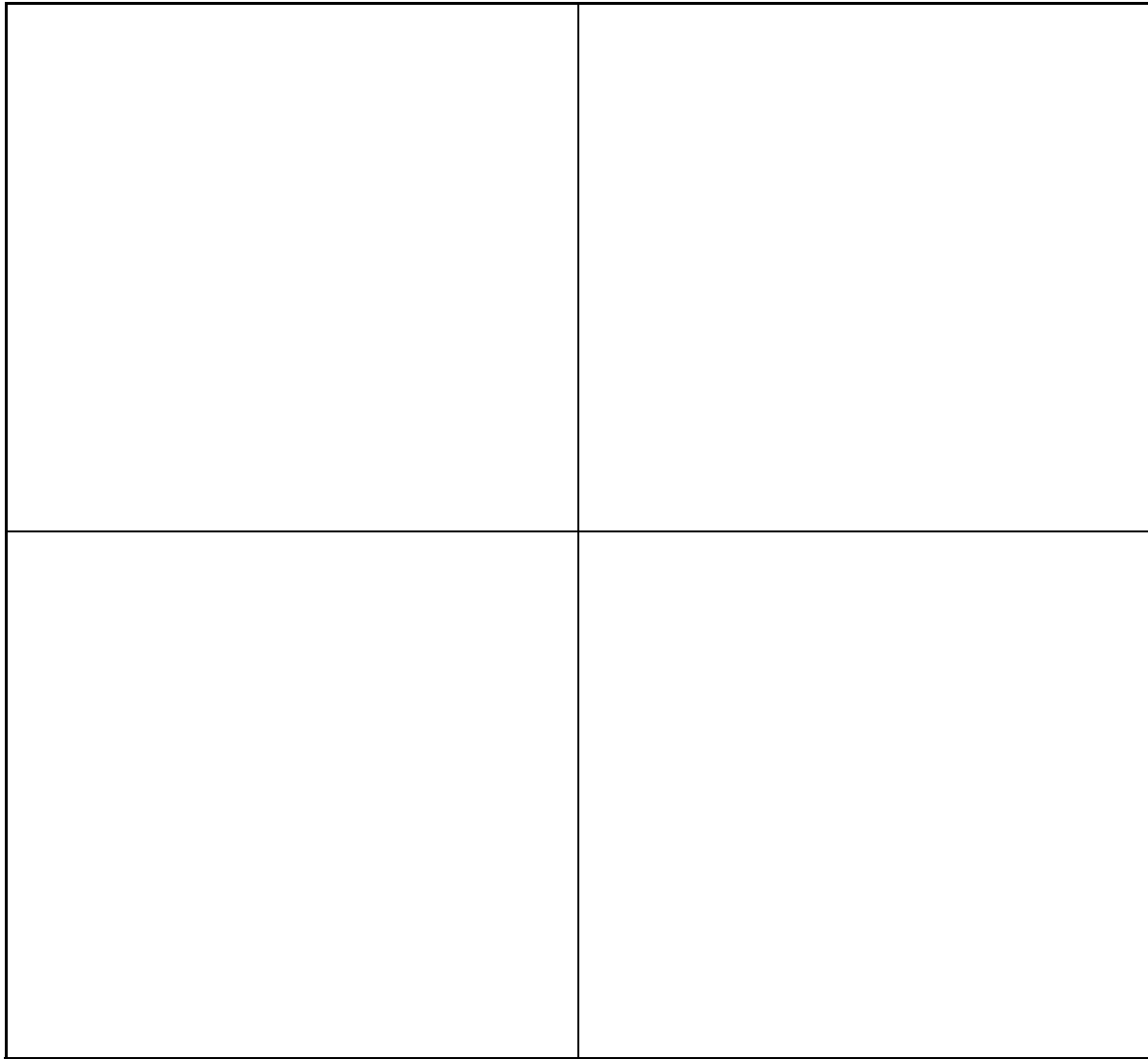
different	dollar	light
same	quarter	long(er) (est)
all	penny	middle
any	addition	narrow
equal	subtraction	short(er) (est)
fewer than	cold	tall (er) (est)
larg(er) (est)	empty	thick
less than	first	thin
more than	full	wide
none	heavy	circle
small(er) (est)	hot	rectangle
some	last	triangle

Language of Instruction: Teacher Only

classify	subtract	shape
color	take away	sphere
property	height	square
sort	in order	straight line
the same as	length	pattern
count	ruler	continue the pattern
how many	size	extend the pattern
number	corner	math
compare	cube	mathematics
bill	curved line	
coin	form	
money	outline	
add	pyramid	
put together	round	

Appendix I: Color Sorting Math Mat Pattern

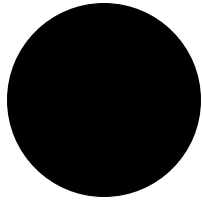
Color Sorting Math Mat



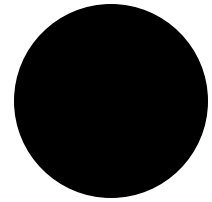
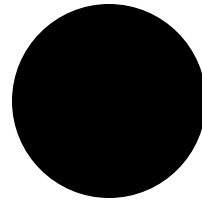
Appendix J: Water Scene Math Mat



Appendix K: Control Cards

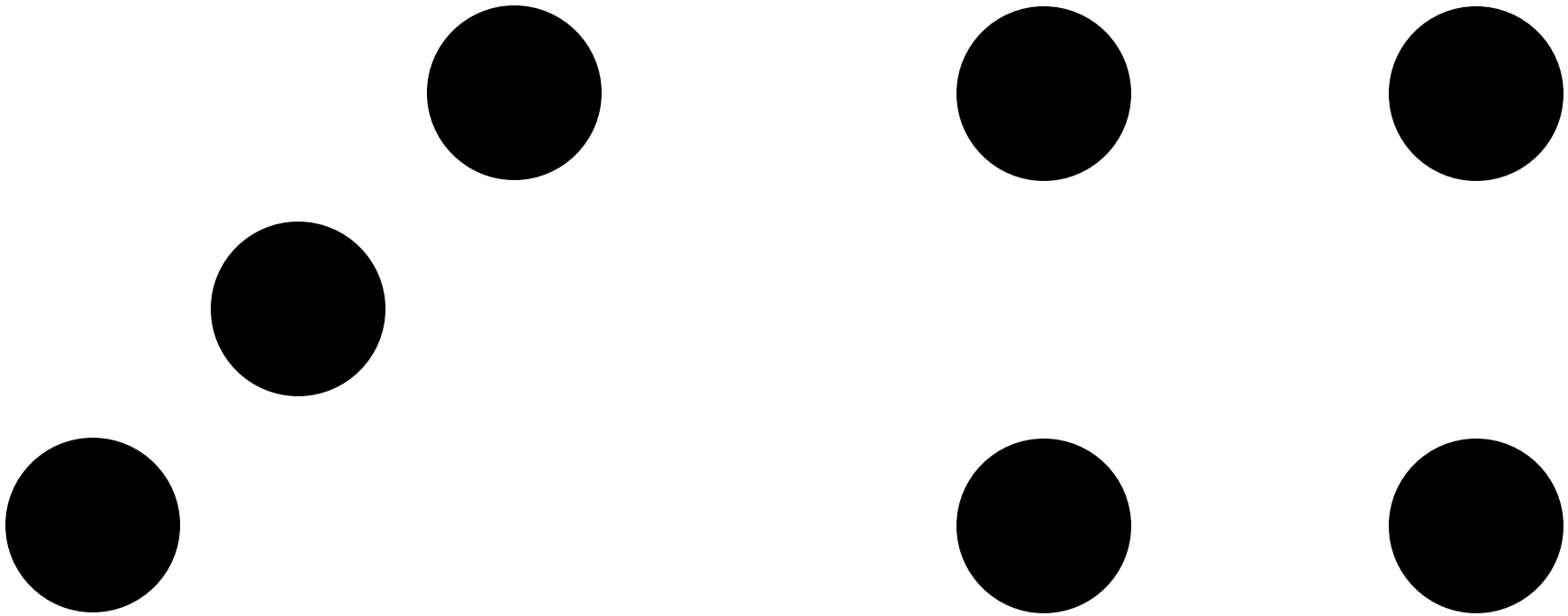


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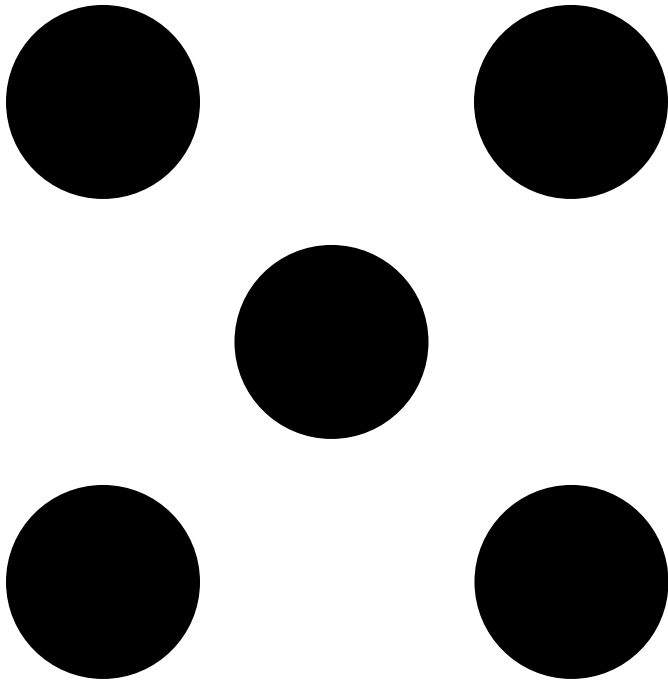
Appendix K: Control Cards



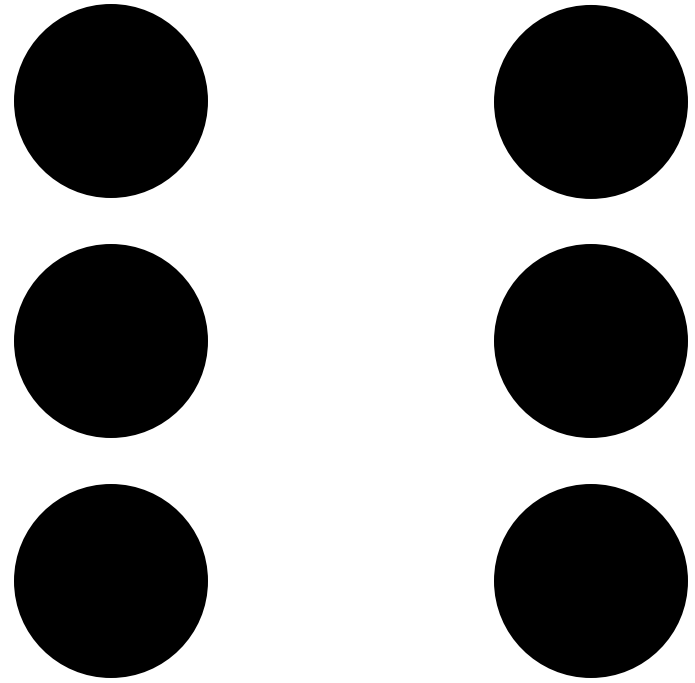
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Appendix K: Control Cards

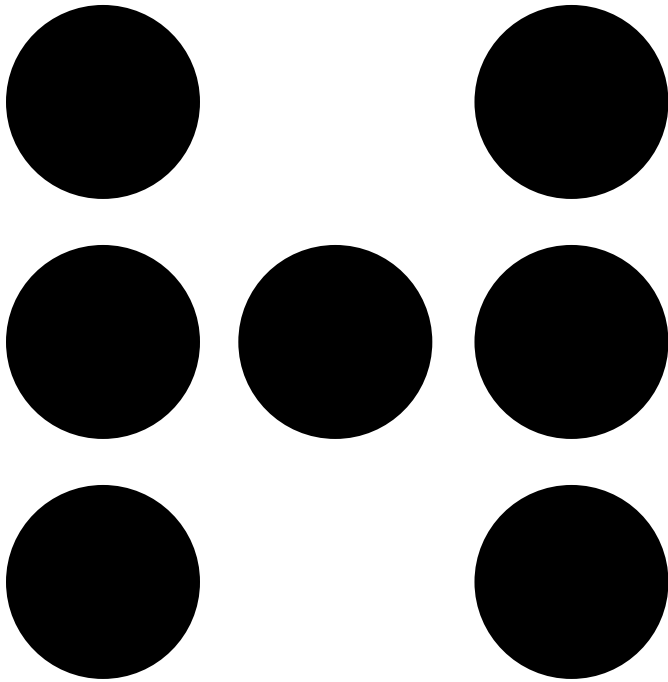


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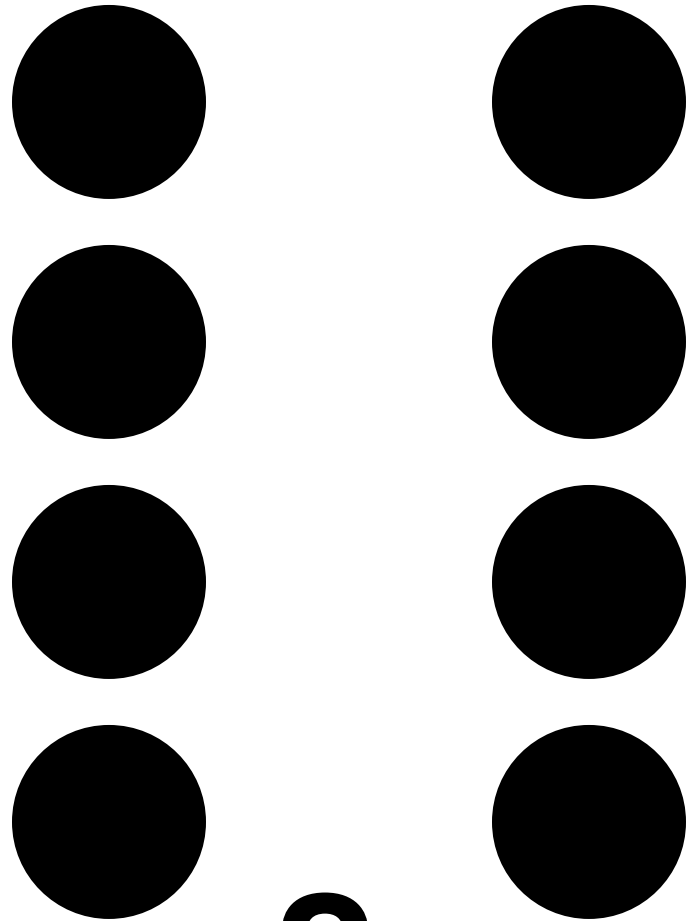


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Appendix K: Control Cards

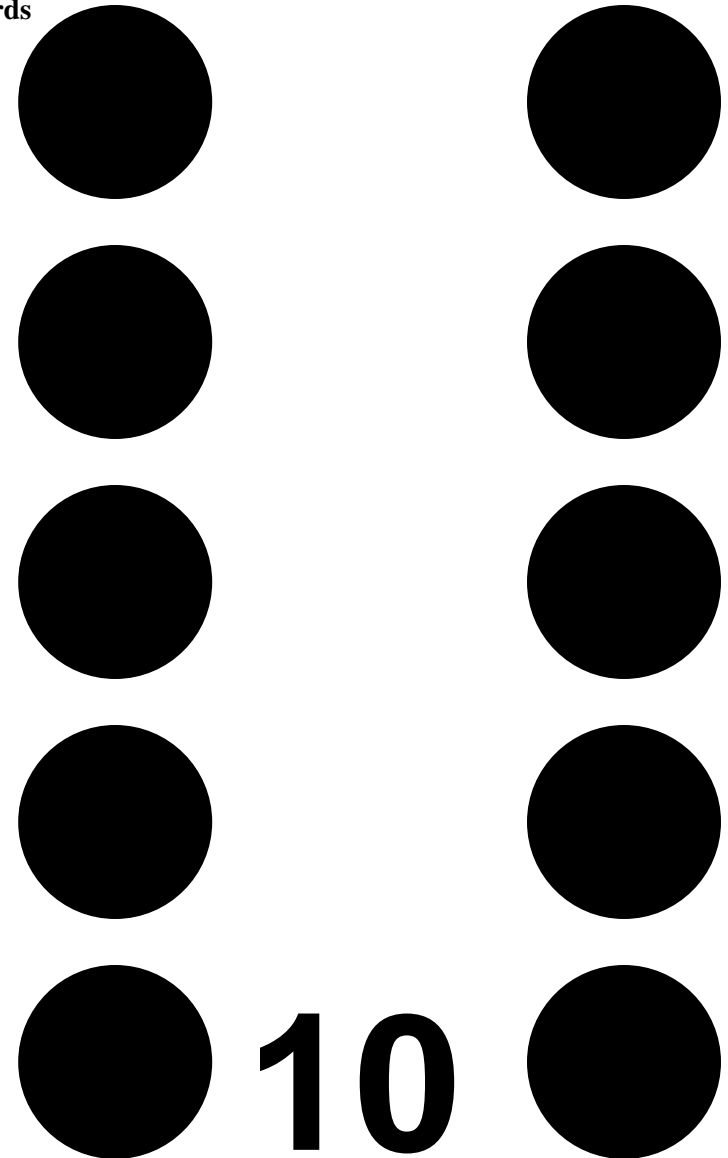
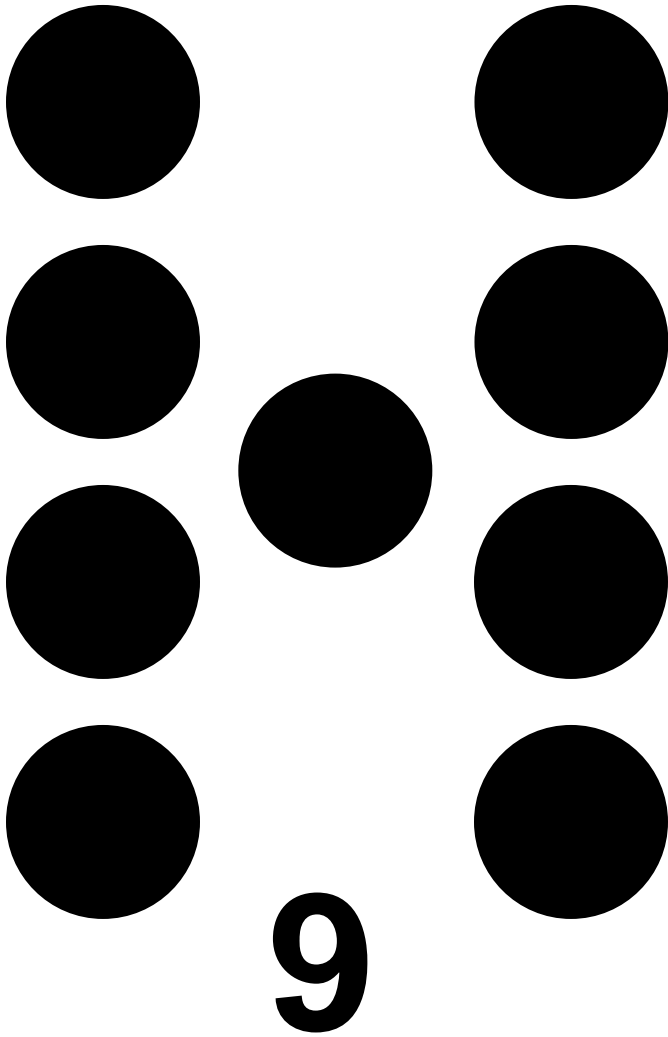


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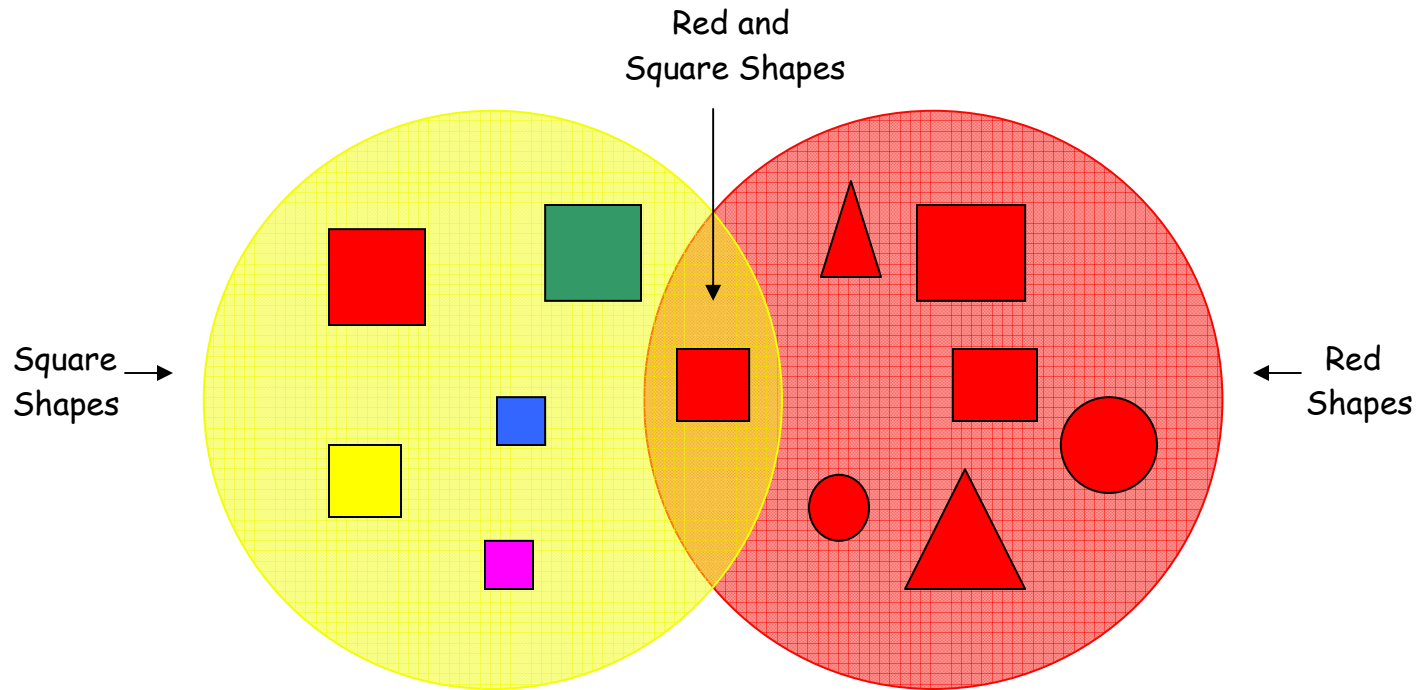


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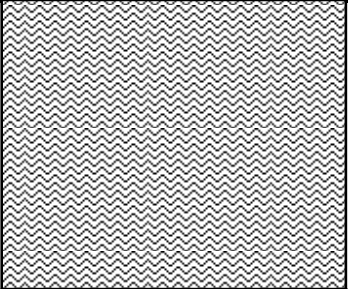
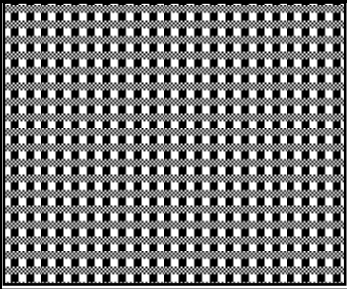
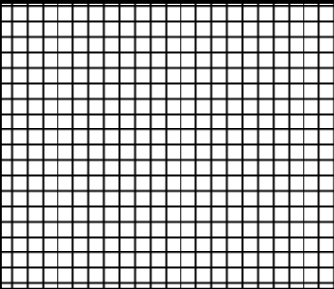
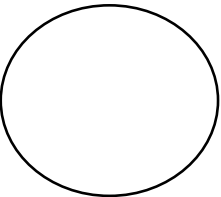
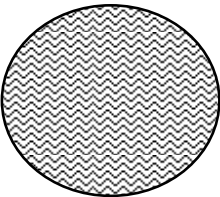
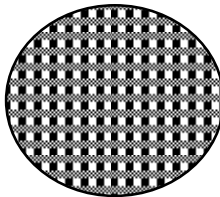
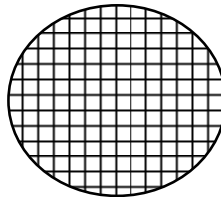

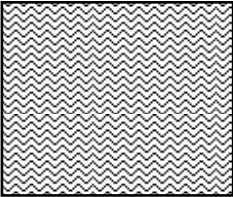
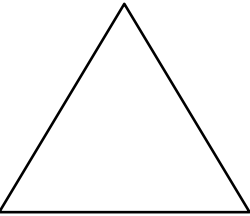
Appendix K: Control Cards

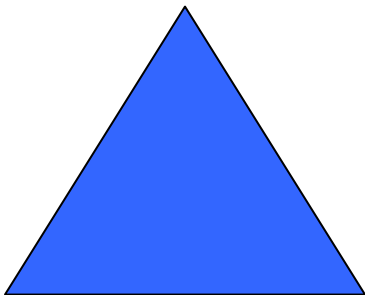
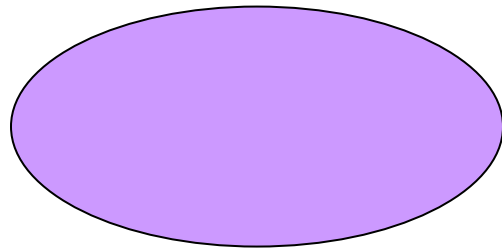


Appendix L: Sample Venn Diagram



Appendix M: Sample Double Entry Table

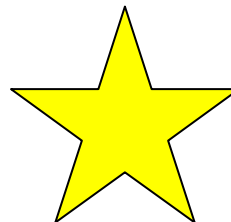
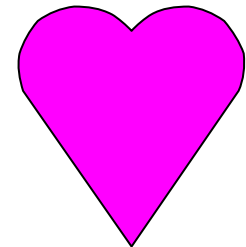
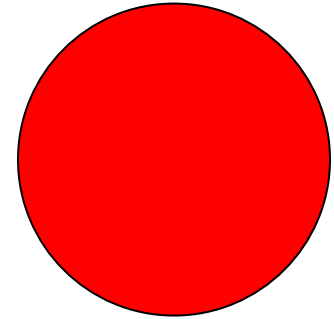


My

Colors

and

Shapes



I see one **blue** triangle.

I see two **purple** ovals.

I see three **green** rectangles.

I see four **orange** diamonds.

I see five **yellow** stars.

I see six **red** circles.

I see seven **pink** hearts.

I see eight black squares.

8

7

6

5

4

3

2

1

Appendix O: Assessment

Assessment

Level I Skill: Pairs of Objects/Pictures As Same or Different

Observe and Note:

- ? When looking at a set of objects, can the child name the objects?
- ? When grouping objects, can the child group the objects that are the same together?
- ? When grouping objects, can the child group the objects that are different together?
- ? Does the child display knowledge of the objects by pointing to them when asked?

Probe:

Ask child to point to the following object attributes of red and yellow, circle and square shapes:

- the ones that are a circle -the ones that are square
- the ones that are red -the ones that are yellow

Competent

- Displays knowledge of classifying pairs of objects as same/different
- AND
- When asked to name a particular attribute of a shape, child can do so without hesitation.

Progressing

- Displays general knowledge of classifying pairs of objects as same/different. For example, shows slight hesitation but is able to point to at least 3 of 4 attributes.

AND/OR

- Is able to name 3 of 4 attributes. For example, child may have hesitation but is able to name at least 3 of 4 attributes.

Not Yet

- Points to general area, however is unsure of specific object attribute. For example, when asked to point to square, child hesitates and points to a circle.

AND/OR

- Exhibits frequent hesitation and/or refers to same attribute over and over again. For example, while pointing to the square, the teacher asks, “What shape is this shape?” The child pauses and then states “circle”. When asked to name another shape, the child repeats his previous answer, “circle” or names the shapes’ color.

Appendix P: Math-Related Literature Books

Anno's Counting Book by Mitsumasa Anno

Color Zoo by Lois Ehlert

Count and See by Tana Hoban

Fish Eyes: A Book You Can Count On by Lois Ehlert

The Grouchy Ladybug by Eric Carle

The Very Hungry Caterpillar by Eric Carle

How Many Bugs in a Box by David A Carter

I Spy Two Eyes: Numbers in Art by Lucy Micklethwait

The Icky Bug Counting Book by Jerry Pallotta

Inch by Inch by Leo Lionni

My Very First Book of Shapes by Eric Carle

One Was Johnny by Maurice Sendak

Over, Under, and Through and Other Spatial Concepts by Tana Hoban

The Shape of Things by Dayle Ann Dodds

Ten Black Dots by Donald Crews

The M&M's Brand Chocolate Candies Counting Book by Barbara McGrath

Missing Mittens by Stuart Murphy

Let's Find Out About Money by Kathy Barabas

Brown Rabbit's Day by Alan Baker

How Many? How Much? by Monica Weiss

Bunny Money by Rosemary Wells

Count! by Denise Fleming

Draw Me A Star by Eric Carle

Imogene's Antlers by David Small

The Quilt Story by Tony Johnston and Tomie DePaola

The Greedy Triangle by Marilyn Burns

The Tangram Magician by Lisa and Lee Ernst

Alexander, Who Used to Be Rich Last Sunday by Judith Viorst

A Chair for My Mother by Vera B. Williams

Pigs Will Be Pigs by Amy Axelrod

Ten, Nine, Eight by Molly Bang

Caps for Sale by Esphyr Slobodkina