

## Activity One: Groundhog Day Shadow Exploration



### Description:

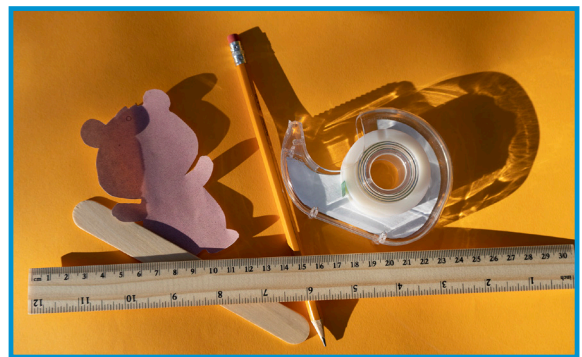
Do you know if the groundhog saw his shadow this year? Folklore says that if the sun is shining when the groundhog comes out of his burrow and he sees his shadow on the ground, the groundhog will return to its burrow and winter will continue for six more weeks. But, if it's cloudy out and the groundhog does not see his shadow, spring will come early this year. Today, let's explore shadows together!

### Brain Building Idea: What causes shadows?

Shadows happen when an object blocks light from passing through it. Shadows are all around us. From trees to cars to tables, almost everything has a shadow. We can change the size and shape of our shadows by changing how light hits the object.

### Materials:

- Groundhog cut outs
- Popsicle Stick
- Flashlight
- Ruler
- Paper
- Pencil
- Tape



### Instructions:

Let's help our groundhog see his shadow and explore different ways to make his shape bigger and smaller!

1. Attach popsicle stick to groundhog cutouts using tape.
2. Tape a piece of paper to a blank wall at eyesight level.
3. Using the flashlight provided, hold the light behind the ground hog and watch as a shadow is cast on the wall.
4. Change the distance between the flashlight and the groundhog cut out and watch how the size of the shadow gets bigger and smaller.
5. Encourage your little one to trace the shadow the groundhog makes on the paper. You can use the ruler to measure the changes in size.

### Extensions:

It's puppet show time! Using construction paper, scissors, and popsicle sticks, make shadow puppet friends for your groundhog. Let's build our story telling skills as we watch the show! What else makes shadows? Encourage your little one to test the shapes made by other objects in front of the light. Plants, toys, and stuffed animals make great subjects for exploration!



## Activity Two: Valentine's Day Coding

### Description:

Happy Valentine's Day! Today's activity introduces your little one to the concept of coding as we use beads to represent the different letters in our names. Did you know you can use colors and numbers to represent letters? Using our coding sheet below, let's code our names to share with those we love!

### Brain Building Idea:

Teaching children to code supports problem solving, resilience, and determination. At the early learning level, coding takes shape in the form of breaking down larger tasks into smaller steps. We can also build our coding skills by using one thing to represent another.

### Materials:

- Pipe Cleaners
- Beads
- Coding Sheet Decoder

### Instructions:

1. First pick a color to represent each letter of the alphabet using the coding sheet.
2. Next, bend the pipe cleaner into a heart shape.
3. Thread the beads onto the pipe cleaner to spell out your name.
4. Create additional hearts for friends, family, and loved ones.



### Extensions:

For an extra challenge, flip the coding sheet over to practice coding by numbers instead! Each series of numbers represents one letter. A pink bead represents zero, and red represents 1. Use different colored beads to represent spaces in between number sequences.



## Activity Two: Valentine's Day Coding

Coding sheet:



Letter	Color	Number
A	RED	1
B	ORANGE	2
C	YELLOW	2
D	GREEN	2
E	BLUE	1
F	PURPLE	2
G	PINK	2
H	WHITE	2
I	YELLOW	1
J	ORANGE	3
K	YELLOW	3
L	GREEN	3
M	BLUE	3
N	PURPLE	3
O	PINK	1
P	WHITE	3
Q	RED	4
R	ORANGE	4
S	YELLOW	4
T	GREEN	4
U	WHITE	1
V	PURPLE	4
W	PINK	4
X	WHITE	4
Y	RED	5
Z	ORANGE	5

### BINARY CODE ALPHABET REFERENCE

1	A	00001	14	N	01110
2	B	00010	15	O	01111
3	C	00011	16	P	10000
4	D	00100	17	Q	10001
5	E	00101	18	R	10010
6	F	00110	19	S	10011
7	G	00111	20	T	10100
8	H	01000	21	U	10101
9	I	01001	22	V	10110
10	J	01010	23	W	10111
11	K	01011	24	X	11000
12	L	01100	25	Y	11001
13	M	01101	26	Z	11010



## Activity Three: President's Day Water Drops

### Description:

Originally meant to honor our first President, George Washington, President's Day has grown to honor all of the United States Presidents. Today, let's honor our Presidents as we learn about surface tension and gravity.



# Brain Building Kits



### Brain Building Idea:

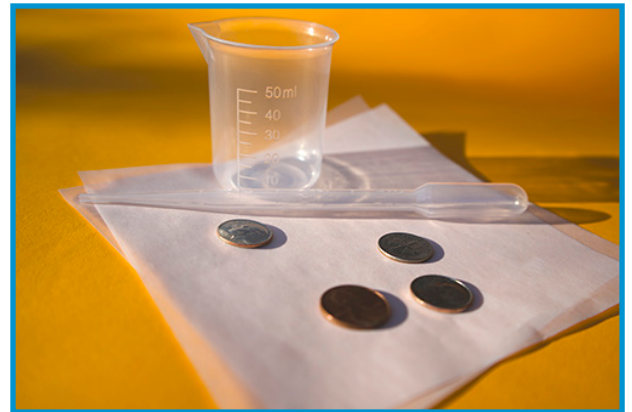
Using pipettes, coins and water, we can explore surface tension and gravity together! Surface tension helps bugs float on water, keeps your glass from spilling over when it's full, and is why bubbles are round! Imagine a tight surface as the water molecules are pulled inward. Gravity on the other hand, is what makes things sink and spill all over. We can observe both these concepts using coins and pipettes.

### Materials:

Coins: penny, nickel, dime, and quarter.  
Which President is on each coin?  
Pipette  
Cup of Water  
Parchment paper

### Instructions:

1. Lay out the parchment paper and line up your coins.
2. Using the pipette, place drops of water on top of each coin. Notice how the surface tension keeps the water on the coin.
3. Keep placing drops of water on each coin until it spills over. How many drops were you able to place? Were you able to place more on bigger coins?
4. Compare each coin and how many drops it took to spill over.



### Extensions:

Let's compete! How many drops can you get on the coins compared to your partner? Explore surface tension even further by floating lightweight objects on top of the cups of water. Plastic bugs, paper clips, and bottle caps are great examples.



## Activity Four: The Color of Us



# Brain Building Kits



### Description:

In honor of Black History Month, this activity explores skin color and its uniqueness to every person. As we look at differences in one another and appreciate our individual beauty, we learn what makes each of us truly them. In this activity we will experiment with color mixing until we find our true skin tones color. People are not simply black or white, but rather a unique shade of color.

### Brain Building Idea:

Understanding diversity and building inclusion begins with an understanding of who we are and what makes us different and the same as others. As we experiment with different colors to create our matching shade, we can notice differences between family members and friends, and explore the skin we live in.

### Materials:

- Various shades of Paint
- Mixing Palette
- Paint brush
- Safety Mirror
- Paper



### Instructions:

1. Using the provided paints, begin mixing primary colors with white until a brown hue forms.
2. Place a small amount of paint on your hand and see if it matches your skin color.
3. Keep adding and mixing paint until the color resembles your skin tone. Use the safety mirrors to see if your hand color matches other parts of your body.
4. Encourage your little one to keep mixing and experimenting with different colors until they have discovered their skin tone.

### Extensions:

For older learners, encourage them to keep track of the additions and changes they make. Record how much of each color they need in order to make their skin color. Once they have identified their own skin tone, encourage your little one to try and create the skin tones of other family members or neighbors using pictures.

