"Putting the Active into Interactive Manipulatives"

Dr. Bruce F. Brodney & Dr. Sandra Brodney

Live Link Access: http://hescowler.weebly.com

Sites:

Math Core **Google: illuminations tens frame** http://illuminations.nctm.org/activity.aspx?id=3565

Number Talks **Google: virtual rekenrek** https://www.mathlearningcenter.org/web-apps/number-rack/

Intervention **Google: exploratorium planets weight** https://www.exploratorium.edu/ronh/weight/

One Stop Shopping **Google: itools thinkcentral wilson** https://www-k6.thinkcentral.com/content/hsp/math/hspmath/na/common/itools_int_9780547584997_/main.html

Van Hiele Levels **Google: shodor venn** http://shodor.org/interactivate/activities/ShapeSorter/

Reason With Shapes **Google: illuminations patch tool** http://illuminations.nctm.org/Activity.aspx?id=3577

Real World Area **Google: math playground geoboard** http://www.mathplayground.com/manipulatives/MP_Geoboard_new.swf

Factors/Multiples **Google: abcya number chart** http://www.abcya.com/interactive_100_number_chart.htm

Understand Congruence **Google: shodor tessellations** http://www.shodor.org/interactivate/activities/Tessellate

Multiplication of Fractions **Google: area model geogebra** https://www.geogebra.org/m/RqRdUusq

Area Builder **Google: phet area builder** https://phet.colorado.edu/sims/html/area-builder/latest/area-builder_en.html

Virtual Protractor **Google**: **alt control achieve protractor** www.controlaltachieve.com/2016/01/best-protractor-ruler-chrome.html

Random Number 1 (dice) **Google: roll dice online** http://www.roll-dice-online.com/

Random Number 2 (dice) **Google: virtual dice roll** https://www.random.org/dice

Random Number 3 (coin toss) **Google: shodor coin toss** http://www.shodor.org/interactivate/activities/Coin/

Random Number 4 (spinner/dice) **Google: shodor experimental** http://www.shodor.org/interactivate/activities/ExpProbability/

The Where: Mega-Sources

Good commercial programs:

- Brainingcamp Manipulatives (ETA Hand2Mind)
- NLVM

100's of good free sites:

- NCTM Illuminations
- Shodor (need to fix their Tessellation site ☺)
- NLVM (needs older Java)
- Thinkcentral

The When Choosing a Site…

Things to look for:	Tips:
Ease of access? Ease of use? Advertising or lack thereof. Instant feedback Colors? Size? Different levels of difficulty? Sound and can I turn it off? Distractors? Are answers given? Versatility? Can you scaffold or give clues? Tablet "Is there an App for that?"	Go through the site carefully ahead of time. Check if there is any Java requirement. Have a backup site if your #1 crush is down.

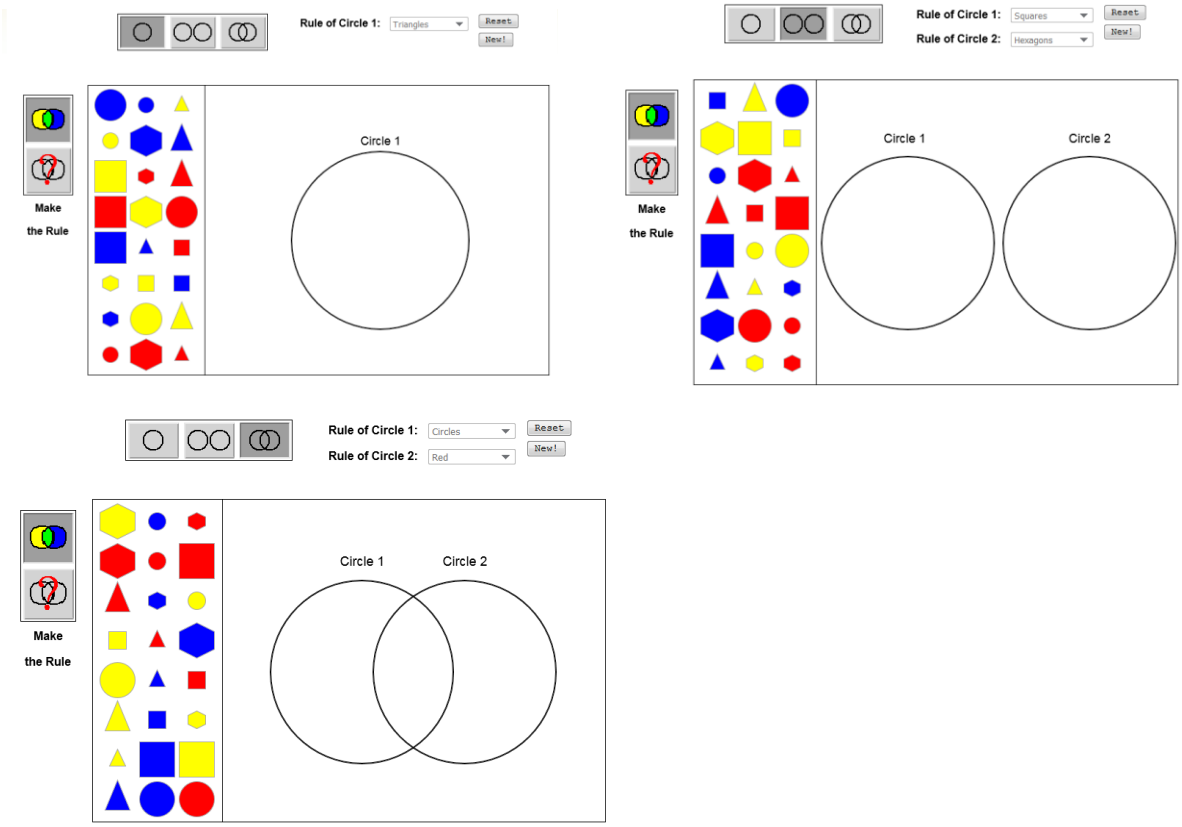
Your Weight on Other Worlds

Multiply your weight by the decimal below to find your weight on other planets and the Moon.

Pluto is optional. Honesty is not a requirement.

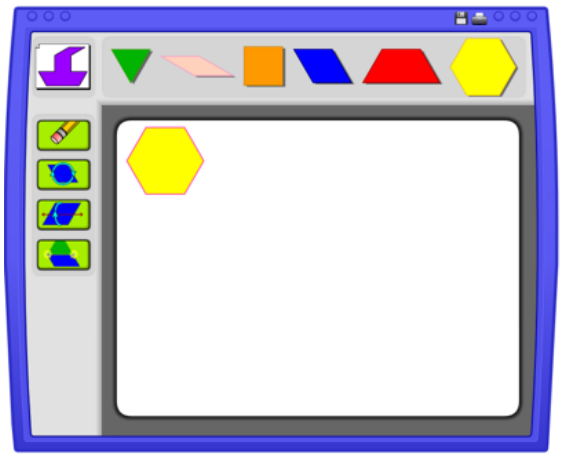
Mercury: 0.38	Moon: .16	Saturn: 1.06	Pluto: .06
Venus: 0.91	Mars: .38	Uranus: .89	
Earth: 1.00	Jupiter: 2.34	Neptune: 1.12	

Identify and describe shapes. Van Hiele levels: visualization, analysis, abstraction.



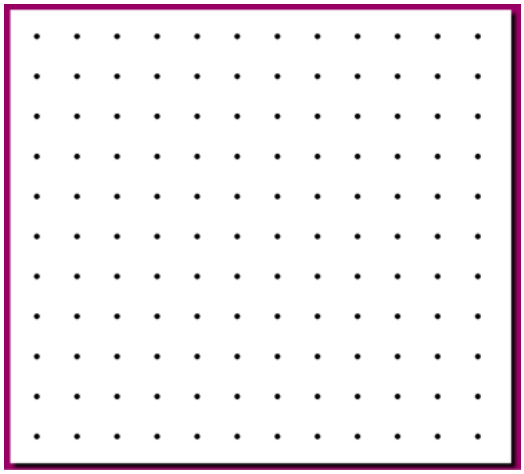
Reason with shapes and their attributes.

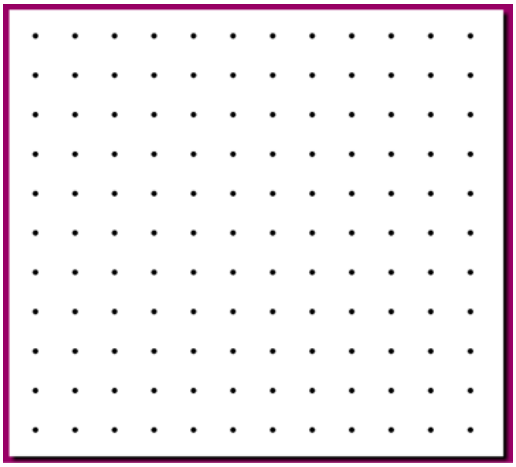
Compose 7 hexagons congruent in with the yellow hexagon using only green triangle, red trapezoid, and blue rhombus. All arrangements must be a unique combination of shape pieces.



Solve real-world and mathematical problems involving area, surface area, and volume.

Prove the area of a triangle is $\frac{1}{2}bh$ of a surrounding rectangle. You could also prove the area of a kite is $\frac{1}{2}bh$ of a surrounding rectangle.





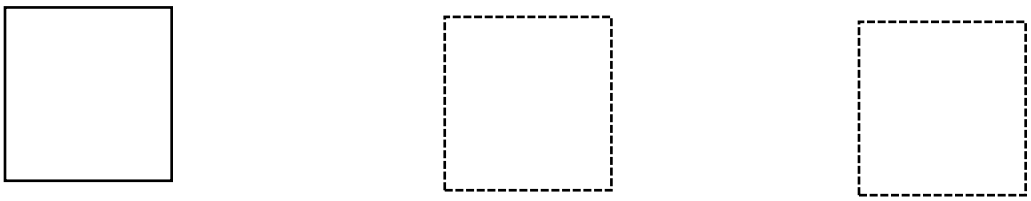
Gain familiarity with factors and multiples.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Understand congruence and similarity using physical models, transparencies, or geometry software.

Do a series of translations to create a tessellating fish.



Please email us any questions or if you wish to share a good site.

Dr. Bruce Brodney brodneyb@spcollege.edu **Dr. Sandra Brodney** brodneys@pcsb.org

To have us visit you as trainers/consultants, contact us at escowler@gmail.com