

William H. Potter
Serendipity School
Phone: (650) 596 - 9100
Email: williamhpotter@gmail.com
Twitter: @MrWillPE
Facebook: www.facebook.com/MrWillPE

Quick Hits

Easy Ways to Incorporate Math (That You Probably Already Do)

IN THE POT:

Players attempt to shoot from various spots into the goal. The various spots are numbered and when a goal is made the player brings the spot to his/her team space. The team with the most points wins. The game is versatile and many different types of equipment set ups can be used.

Variations: Change the game up with variations. For example, the team with the fewest points, or the team with the most spots. Experiment with scores like, the team that can make the largest number, or the team that can make the smallest number.

What Time Is It Mr. Fox:

Add the use of a classroom teaching clock to the classic “Red Light/Green Light” game to force participants to learn how to tell time. Mr. Fox stands at one end of the court, the hunters stand at the other. The hunters ask “What time is it Mr. Fox?” Mr. Fox uses the classroom clock to tell the hunters what time it is. 1 o'clock, 2 o'clock etc.

Variations: Challenge your older students by add quarter, half and 3/4 hours.

Cool Bucks:

Teach students money math by opening up a store. Give out “cool bucks” for incentives. Students can trade in 5 cool bucks for a \$5 version, 10 for a \$10 version 20 for a \$20 version. Then create a store (prize box) with different object values that students can purchase and make change with.

Fractions & Percentages:

Change students mindsets when it comes to performing any skill. “How many out of 10 can you do?” Ask them to turn that number into a fraction. Now ask them to turn it into a percentage. Provide them with a white board, and or manipulative tools to help them visual the fraction/percentage. Example: Ginger takes 10 T-ball swings. She connects with 8. $\frac{8}{10}$ is a fraction can you reduce the fraction to something smaller? 80% is the percentage, if you took 100 shots how many would you make? Start simple, then add twists (Have them work with a partner, and add their fraction. etc)

Students are always trying to keep track of their score so let them, just challenge them to express it in different ways.

Activity Log/Heart Rate Graph

Teach kids how to create charts, and graphs using their heart rate as data. Have students take and record their pulse for different activities. Graph the results and discuss patterns. (What happened to your heart rate when... or What activities gave your highest/lowest results, etc).

Heart Rate Tracking Instructions

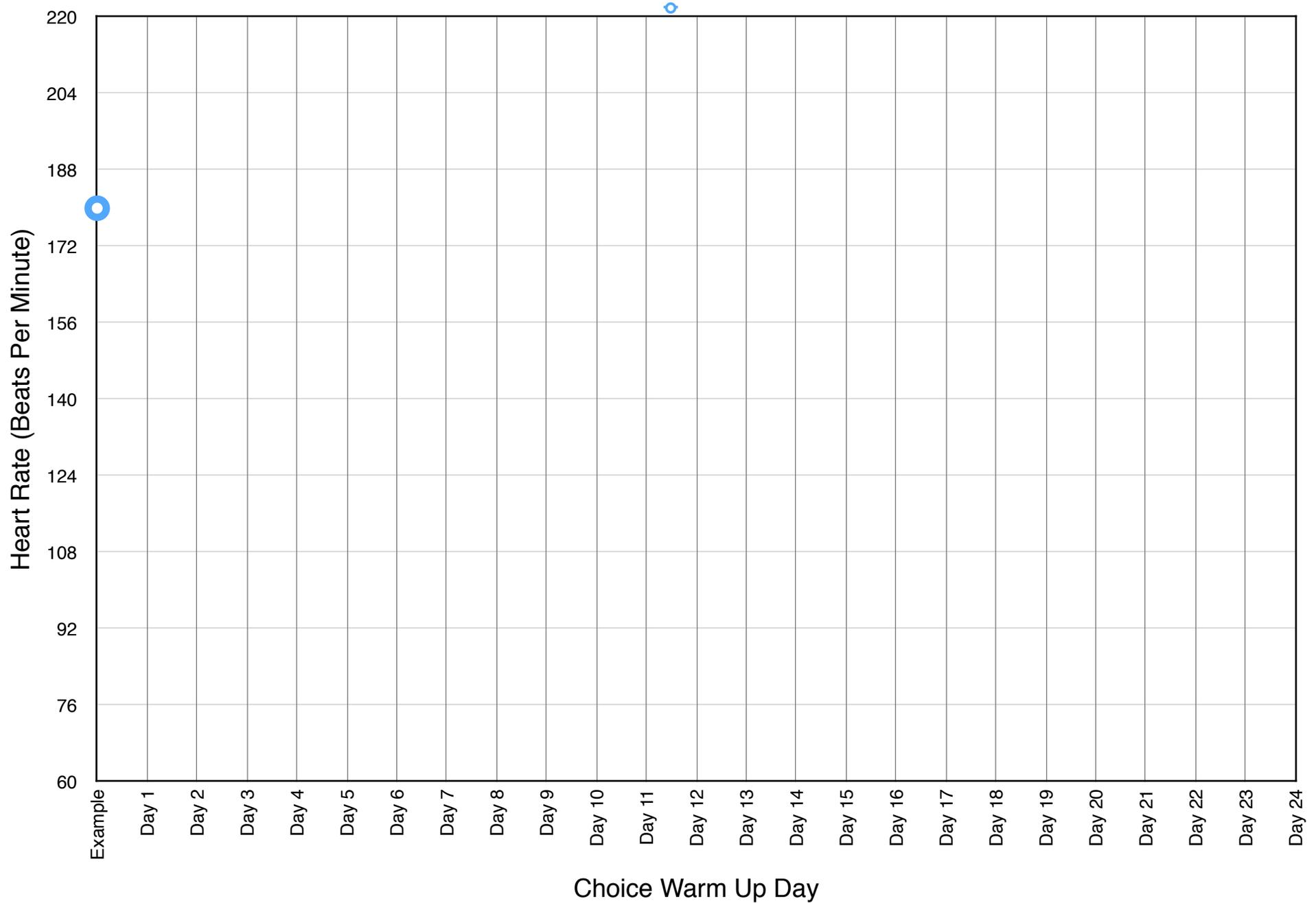
In addition to keeping track of our heart rates using the choice warm up activity log, we will also be creating a graph of the information. Follow the directions below to assist you.

- 1) Start by finding the Day you would like to add a tracking mark to on the X axis.
- 2) Next Take your heart rate, in our example is was 180. Find where your heart rate falls on the Y axis. If your exact heart rate does not appear on a line, use your best estimation skills to find a good spot for the heart rate. *Note: if your heart rate is above 220 beats per minute you may need to reassess your heart rate.*
- 3) Now you will follow the line up from the day and over from the beats per minute and place your mark at the appropriate place on the graph. (Be sure that your mark is solid and dark.)
- 4) Lastly you will connect the dots to complete your line graph.

Over time we will have a visual representation tracking how hard you worked during your warm up. Remember our "Target Heart Rate" for our warm up is between 150 and 180 beats per minute.

If you are confused or need assistance, see Mr. Will and he will help guide you.

Choice Warm Up Heart Rate Line Graph



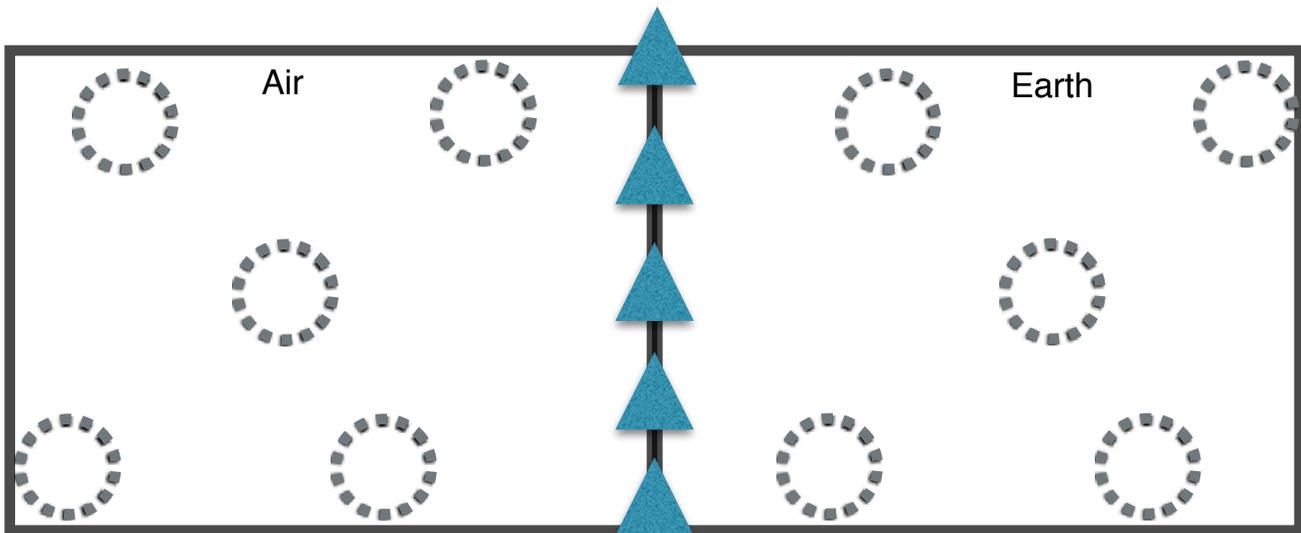
Evaporators vs Precipitators

The Water Cycle in Action

Background: Evaporators vs Precipitators is a fun and creative way to teach the water cycle to children. It teaches Evaporation, Condensation, Precipitation and Collection. Advanced students can be introduced to the concepts of Drought, and Flooding.

Equipment: This game uses cones to divide your space (nets or vertical mats also work), 5-7 yarn balls per player to act as water, and 3 or 4 Hoops to represent clouds/bodies of water.

The Game: The game is actually just a variation of “Clean Up Your Backyard”. Divide your space into two parts with 4-5 hoops at various distances on either side. Your space should look like this:



Gameplay: The team on the “Air” side of the court is the “Precipitation” team. Their goal is to rain (throw) as much as they can on to the team on the “Earth” side of the court. The team on the “Earth” side of the court is the “Evaporation” team. Their goal is to evaporate (throw) as much as they can into the “Air” team’s side. As rain falls to the “Earth”, players on that side must gather and collect those water molecules and take them to Collection points (hoops). Collection points are commonly known as **Oceans** or **Lakes**. When collection occurs to water molecules in the air, that is called **Condensation**. The Water molecules that are evaporated to the “Air”, must be gathered by players on that side and taken to Condensation points (hoops). Condensation points are commonly known as **Clouds**. The team with the least amount of water molecules on their side wins. Players can at any time become evaporators or precipitators, however they must have at least one foot inside of a hoop when throwing, and may only throw one ball at a time.

Evaporators vs Precipitators

The Water Cycle in Action

Teachable Moments: Be sure to discuss with your class the process that they see occurring. While the water changes form it does not actually leave the cycle, it just changes form

Next change the teams to be uneven, and discuss what happens when there aren't enough players who are precipitators, (Drought). Change the teams to be uneven in the opposite way and discuss what occurs when there is too much precipitation (Flooding).

Other Notes: The diagrams below can be found at <http://www.kidzone.ws> and can be useful in discussing the different phases of the water cycle. Full size is 8.5x11 inches

Precipitation



Precipitation occurs when so much water has condensed that the air cannot hold it anymore. The clouds get heavy and water falls back to the earth in the form of rain, hail or snow.

If you continue the condensation experiment long enough, so much water will condense on the book that it won't be able to hold it all. At that point, water will start dripping down from the book and you've created precipitation!

Condensation



Water vapor in the air gets cold and changes back into liquid, forming clouds. This is called condensation.

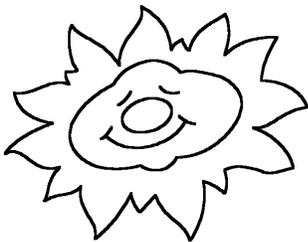
To see condensation in action, put a large (at least 8 1/2 x 11) piece of cardboard (a book will work) in the freezer for about an hour. Now, take the boiling kettle of water and hold the cold book about 1 foot over the spout (right in the steam... wear oven mitts). Water droplets will form on the book. That's condensation!

Collection

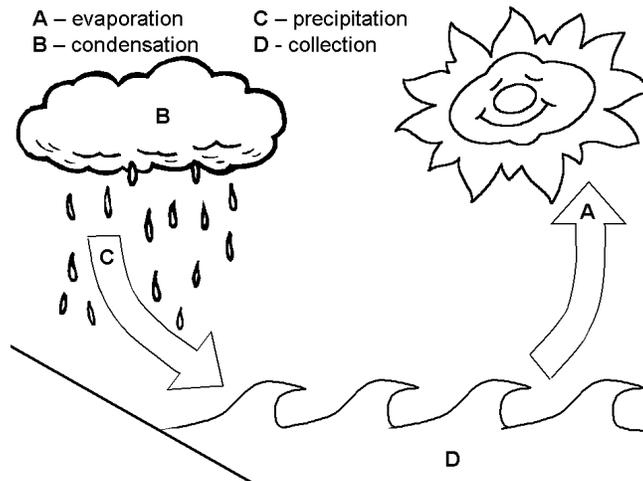


When water falls back to earth as precipitation, it may fall back in the oceans, lakes or rivers or it may end up on land. When it ends up on land, it will either soak into the earth and become part of the "ground water" that plants and animals use to drink or it may run over the soil and collect in the oceans, lakes or rivers where the cycle starts all over again.

Evaporation



Evaporation is when the sun heats up water in rivers or lakes or the ocean and turns it into vapor or steam. The water vapor or steam leaves the river, lake or ocean and goes into the air. Make your own evaporation. With an adult's help, heat some water in a kettle. Watch closely! Do you see the steam rising? That's evaporation!



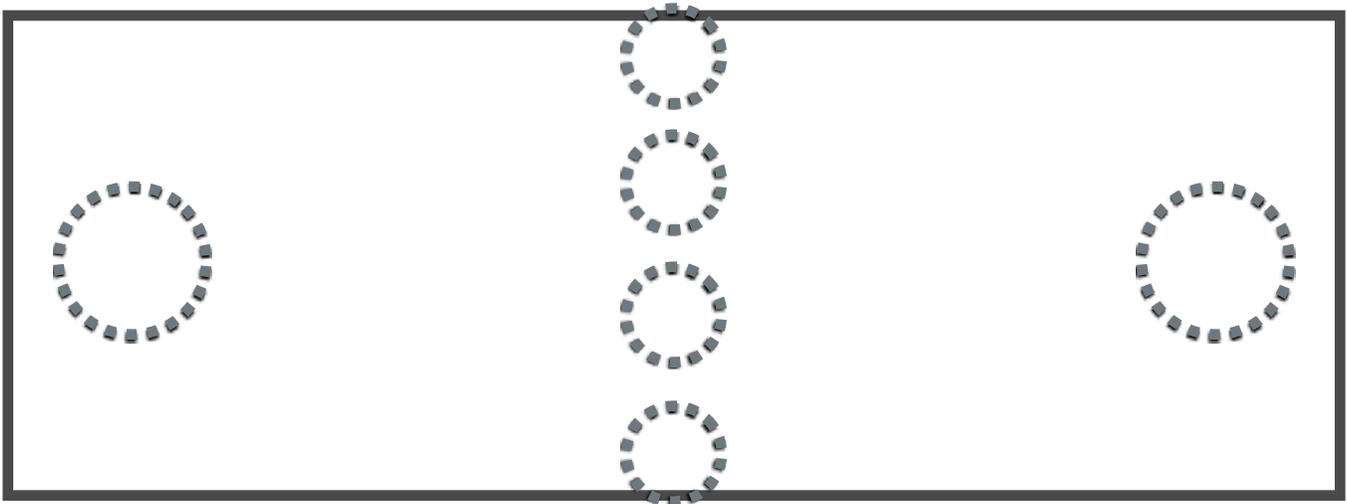
Ro/Sham/Bo Risk

Teaching Place Value Addition

Background: A Modified Version of JD Hughes' *Double or Nothing* Game. In this game players will learn place value math. Advanced students can also learn to count using the "Base" number system.

Equipment: Pencils or popsicle sticks, deck rings (small and large), Hula Hoops, Dice or polygonal dice.

The Game: Set up a playing surface so that hula hoops divide the space into two sides. Place two hoops at either end of the court to represent a "home base" for each team. If playing with more than 2 teams still divide the space in two but place more "home base" hoops around the playing surface. Each midline hoop contains one polygonal dice.



Gameplay: Two or more teams face off against each other to win as many rounds of ro-sham-bo as possible. Players will roll dice to determine how many pencils to get. The winner gets pencils the loser chooses an activity card from the stack. 10 pencils/popsicle sticks = 1 deck ring, 10 deck rings = 10 large deck rings, 10 larger deck rings = 1 hula hoop. As play progresses, players will swap pencils for rings and rings for hoops. At the end of the game you can explain to players how place value is represented. For example if one team score 1786 points, then they would have 6 pencils (the ones place) 8 Deck Rings (the tens place), 7 large deck rings (hundreds place) and 1 hula hoop (thousands place). With very little effort you can demonstrate place value.

Mix it up: Give each team one hula hoop and have them play the game to zero points. This forces them to trade in and go backwards reinforcing subtraction and regrouping skills. You can also have the players play using a different base, for example base 5. where they trade in at 5 pencils. This changes the place value making critical thinking occur.

“Look again at that dot. That's here. That's home. That's us. On it everyone you love, everyone you know, everyone you ever heard of, every human being who ever was, lived out their lives. The aggregate of our joy and suffering, thousands of confident religions, ideologies, and economic doctrines, every hunter and forager, every hero and coward, every creator and destroyer of civilization, every king and peasant, every young couple in love, every mother and father, hopeful child, inventor and explorer, every teacher of morals, every corrupt politician, every "superstar," every "supreme leader," every saint and sinner in the history of our species lived there-on a mote of dust suspended in a sunbeam.

The Earth is a very small stage in a vast cosmic arena. Think of the endless cruelties visited by the inhabitants of one corner of this pixel on the scarcely distinguishable inhabitants of some other corner, how frequent their misunderstandings, how eager they are to kill one another, how fervent their hatreds. Think of the rivers of blood spilled by all those generals and emperors so that, in glory and triumph, they could become the momentary masters of a fraction of a dot.

Our posturings, our imagined self-importance, the delusion that we have some privileged position in the Universe, are challenged by this point of pale light. Our planet is a lonely speck in the great enveloping cosmic dark. In our obscurity, in all this vastness, there is no hint that help will come from elsewhere to save us from ourselves.

The Earth is the only world known so far to harbor life. There is nowhere else, at least in the near future, to which our species could migrate. Visit, yes. Settle, not yet. Like it or not, for the moment the Earth is where we make our stand.

It has been said that astronomy is a humbling and character-building experience. There is perhaps no better demonstration of the folly of human conceits than this distant image of our tiny world. To me, it underscores our responsibility to deal more kindly with one another, and to preserve and cherish the pale blue dot, the only home we've ever known.” ~Carl Sagan from *Pale Blue Dot: A Vision of the Human Future in Space*



MERCURY

A large, grey, cratered planet (Mercury) is shown against a dark background with wispy white clouds or smoke.

If the Solar System was 1000 yards and the Sun was the Size of an 8 Inch Dodgeball...

Mercury would be 10 steps from the Sun.

Mercury would be 0.03 inches in diameter (The size of a pinhead across)

Did You Know?

Even though Mercury is the closest planet to the sun, its surface can still be extremely cold. The temperature during the day can reach 840 degrees Fahrenheit (450 degrees Celsius), but at night, temperatures can get as low as minus 275 F (minus 170 C). That fluctuation equals a temperature swing of more than 1,100 F (600 C), the largest of any planet in the solar system

If the Solar System was 1000 yards and the Sun was the Size of an 8 Inch Dodgeball...

Venus would be 9 Steps from Mercury and 19 steps from the Sun.

Venus would be 0.08 inches in diameter (The size of a peppercorn across)

Did You Know?

A day on Venus lasts 243 Earth days (that's how long it takes Venus to make one rotation), while a year on Venus (its revolution period around the sun) is shorter, at just 224.7 Earth days.

VENUS

A large, orange and yellow planet (Venus) is shown against a dark background with wispy white clouds or smoke.



EARTH

If the Solar System was 1000 yards and the Sun was the Size of an 8 Inch Dodgeball...

Earth would be 7 Steps from Venus and 26 steps from the Sun.
Earth would be 0.08 inches in diameter (The size of a peppercorn across)

Did You Know?

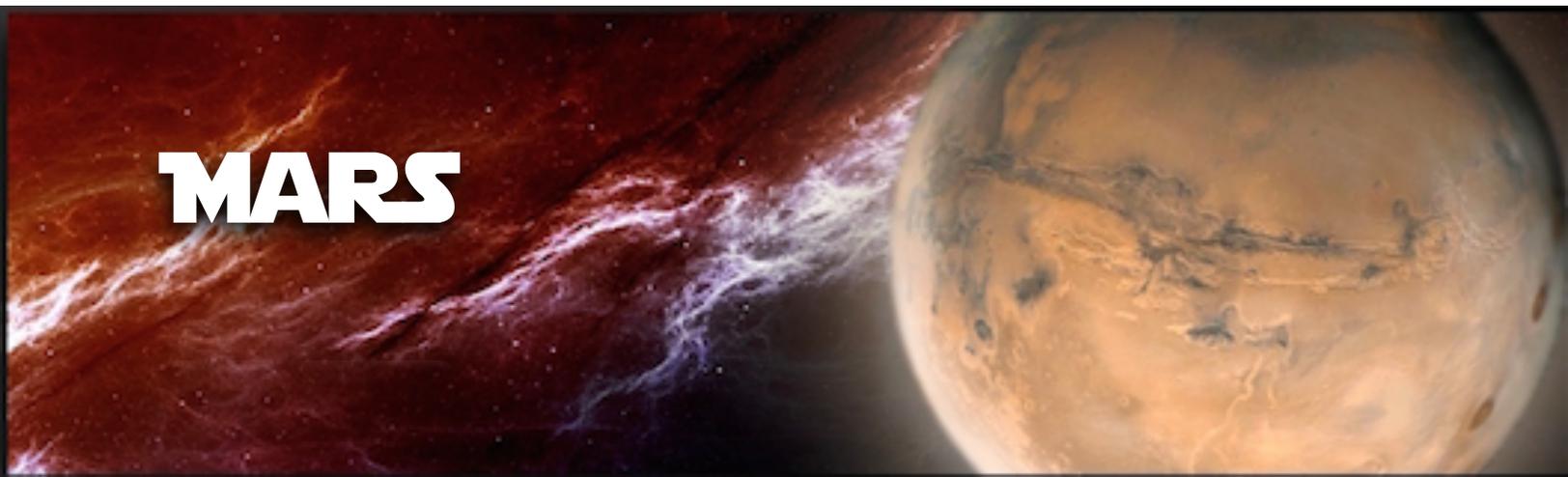
Earth is covered in stardust. Every year, 40,000 tons of cosmic dust falls upon our planet. It's not something we notice, but eventually all that dust, which is made of oxygen, carbon, iron, nickel, and all the other elements, finds its way into our bodies. We are stardust.

If the Solar System was 1000 yards and the Sun was the Size of an 8 Inch Dodgeball...

Mars would be 14 steps from Earth and 40 steps from the Sun.
Mars would be 0.03 inches in diameter (The size of a pinhead across)

Did You Know?

The dust storms of the Mars are the largest in the solar system, capable of blanketing the entire red planet and lasting for months.



MARS



JUPITER

If the Solar System was 1000 yards and the Sun was the Size of an 8 Inch Dodgeball...

Jupiter would be 95 steps from Mars and 135 steps from the Sun.

Jupiter would be 0.90 inches in diameter (The size of a chestnut or pecan across)

Did You Know?

It would take 11 Earths lined up next to each other to stretch from one side of Jupiter to the other and it would take 317 Earths to equal the mass of Jupiter.

If the Solar System was 1000 yards and the Sun was the Size of an 8 Inch Dodgeball...

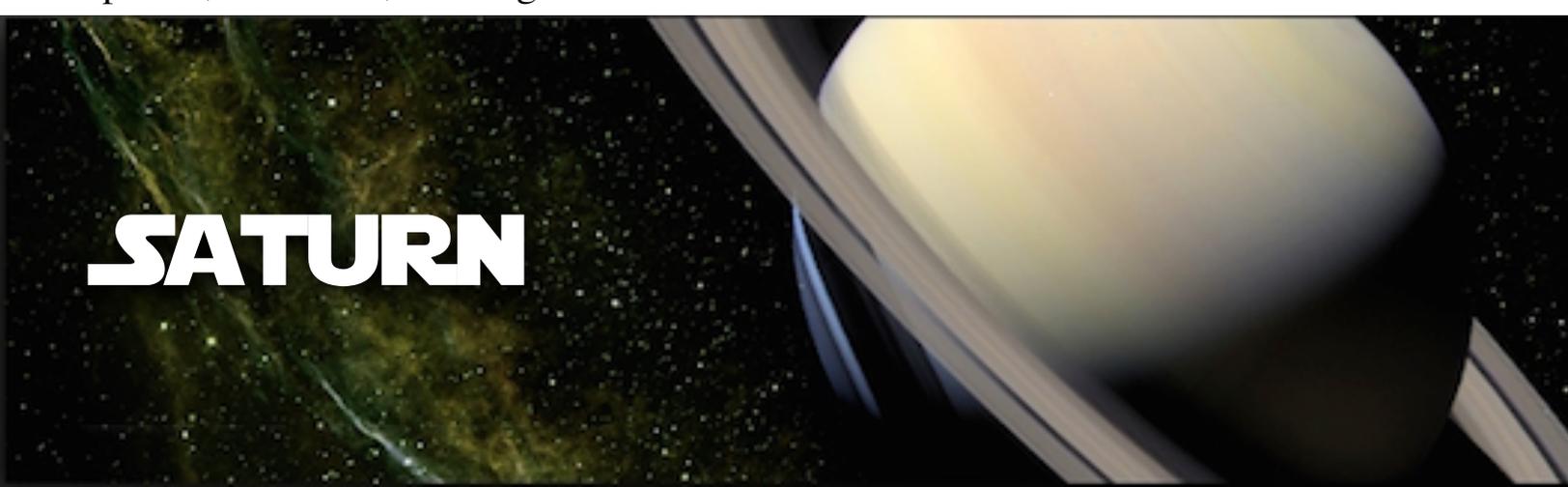
Saturn would be 112 steps from Jupiter and 247 steps from the Sun.

Saturn would be 0.70 inches in diameter (The size of a hazelnut or an acorn across)

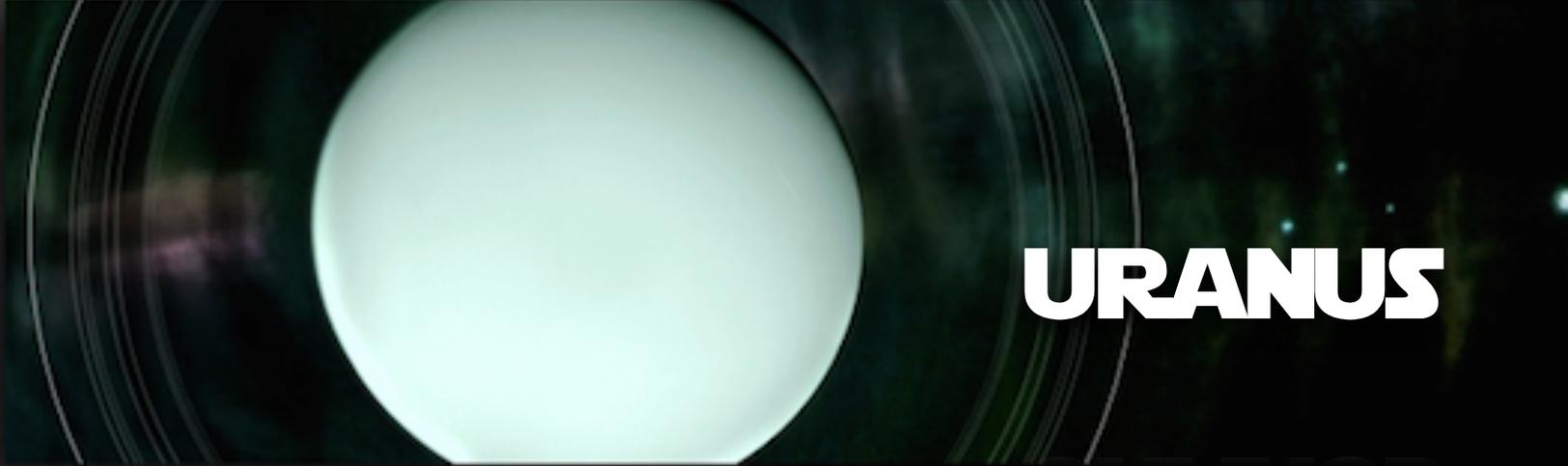
Did You Know?

Four spacecraft have visited Saturn:

Pioneer 11, *Voyager 1* and *2*, and the *Cassini-Huygens mission* have all studied the planet. Cassini continues to orbit Saturn, sending back a wealth of data about the planet, its moons, and rings.



SATURN



URANUS

If the Solar System was 1000 yards and the Sun was the Size of an 8 Inch Dodgeball...

Uranus would be 249 steps from Saturn and 496 steps from the Sun.
Uranus would be 0.30 inches in diameter (The size of a peanut across)

Did You Know?

Although Uranus is visible to the naked eye, it was long mistaken as a star because of the planet's dimness and slow orbit. The planet is also notable for its dramatic tilt, which causes its axis to point nearly directly at the sun.

If the Solar System was 1000 yards and the Sun was the Size of an 8 Inch Dodgeball...

Neptune would be 281 steps from Uranus and 777 steps from the Sun.
Neptune would be 0.30 inches in diameter (The size of a coffee bean across)

Did You Know?

Neptune is one of the four "gas giants". Like Jupiter, Saturn and Uranus, it is composed only of gas. Neptune is a great ball of hydrogen and helium.



NEPTUNE



PLUTO

If the Solar System was 1000 yards and the Sun was the Size of an 8 Inch Dodgeball...

Pluto would be 242 steps from Neptune and 1019 steps from the Sun.
Pluto would be 0.02 inches in diameter (The size of about half a pinhead across)

Did You Know?

Pluto has been visited by one spacecraft. The *New Horizons* spacecraft, which was launched in 2006, flew by Pluto on the 14th of July 2015 and took a series of images and other measurements. *New Horizons* is now on its way to the Kuiper Belt to explore even more distant objects.

For The 100 Yard Model, Divide Everything By 10

10 becomes 1
1 becomes .1
.1 becomes .01

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Planet Fitness: (Above) Take your students on a “to scale” journey of the solar system. Use locomotor skills to enhance their fitness while learning about the solar system. (Note: see the online materials for the printable Planet cards for this activity)

Fitness Sudoku: (Below) A great teambuilding challenge. Create a large-scale version of a Sudoku board using hula-hoops or duct tape. Use numbers 1-9 to keep it traditional, or go crazy and print fitness task cards like the one below to increase the fitness component of this group challenge. (note: see online materials for printable Sudoku task cards.)

Fitness Sudoku Exercise Task Card

This Exercise Must Be Performed Three (3) Times Before It Can Be Placed Or Moved on the Sudoku Board



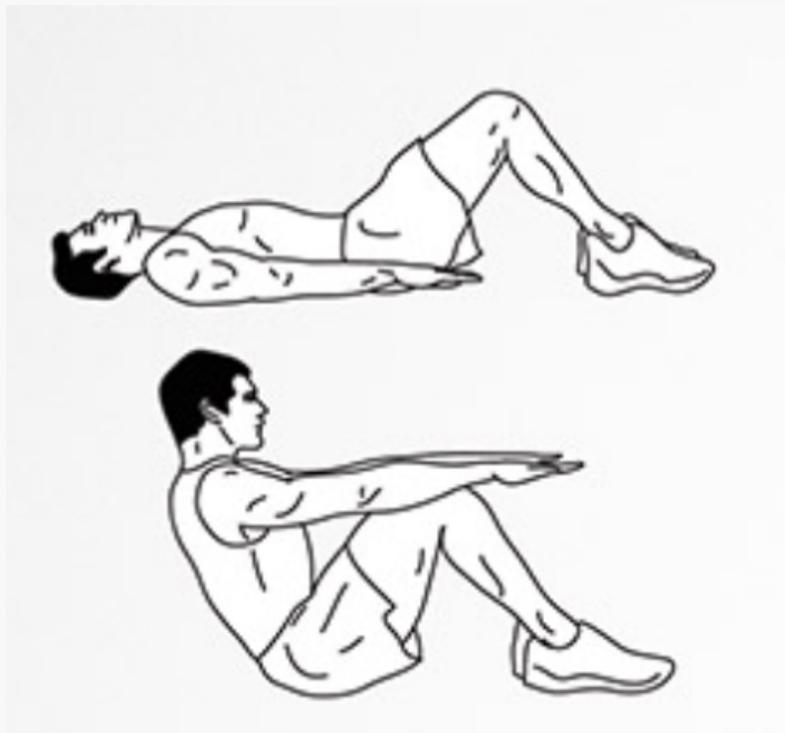
DAREBEE WORKOUT @ darebee.com

The Squat: Keys To Success

1. Chest Up/Shoulders Back
2. Knees Behind Toes
3. Sit Back
4. Keep Your Weight on Your Heels

Fitness Sudoku Exercise Task Card

This Exercise Must Be Performed Three (3) Times Before It Can Be Placed Or Moved on the Sudoku Board



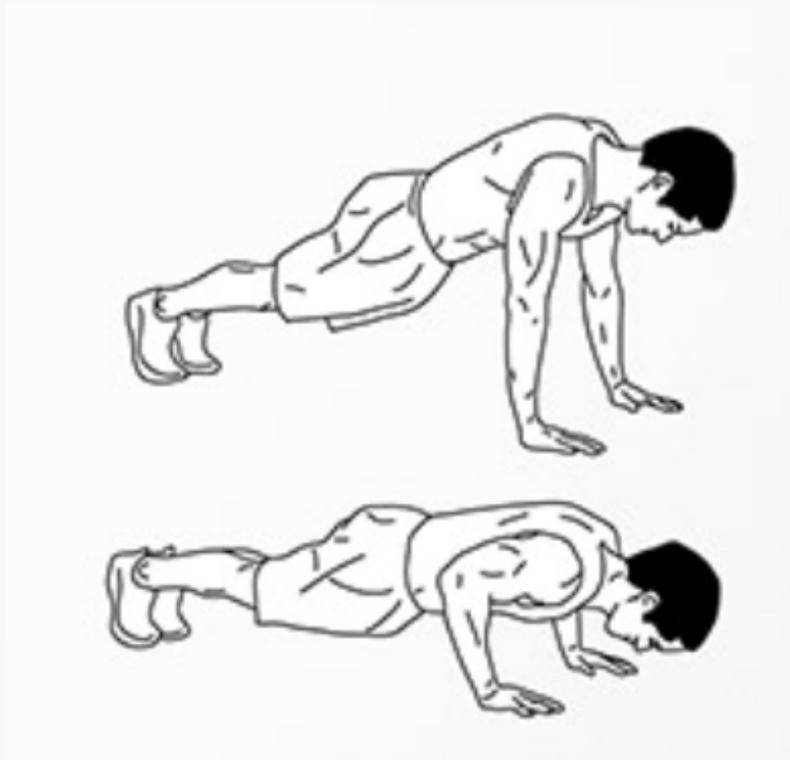
DAREBEE WORKOUT @ darebee.com

The Sit-Up:
Keys To Success

1. Keep Your Knees Bent
2. Keep Head & Neck Still
3. Don't Arch Lower Back
4. Keep Abdominals Tight on Return

Fitness Sudoku Exercise Task Card

This Exercise Must Be Performed Three (3) Times Before It Can Be Placed Or Moved on the Sudoku Board



DAREBEE WORKOUT @ darebee.com

The Push-Up: Keys To Success

1. Hips, Shoulders & Ears In Line
2. Lead With Your Chest
3. Hands Under Shoulders
4. Modify (go to knees) If necessary

Fitness Sudoku Exercise Task Card

This Exercise Must Be Performed Three (3) Times Before It Can Be Placed Or Moved on the Sudoku Board



DAREBEE WORKOUT @ darebee.com

The Lunge:
Keys To Success

1. Keep Body Straight
2. Step Forward
3. Bend Knees to 90
4. Keep Front Knee Behind Toes

Fitness Sudoku Exercise Task Card

This Exercise Must Be Performed Ten (10) Times Before It Can Be Placed Or Moved on the Sudoku Board



DAREBEE WORKOUT @ darebee.com

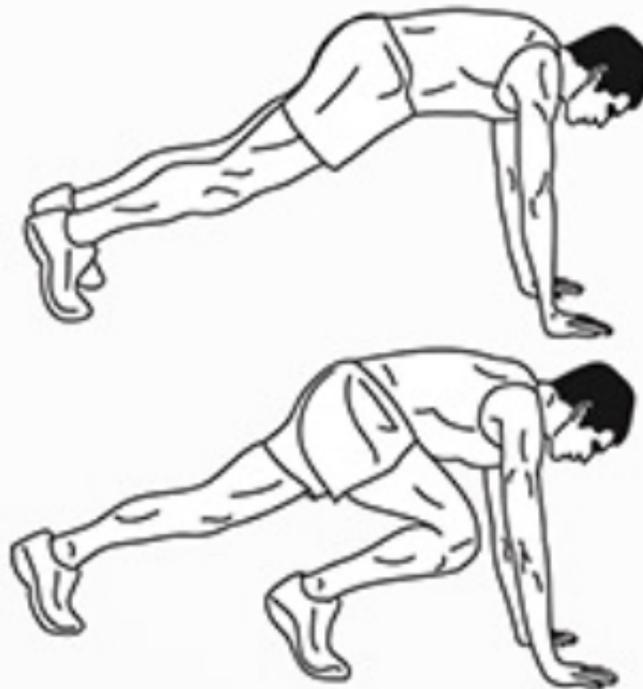
High Knees

Keys To Success

1. Bring Knees As High As Possible
2. Pump Arms
3. Keep On Your Toes
4. Remember To Breathe

Fitness Sudoku Exercise Task Card

This Exercise Must Be Performed Ten (10) Times Before It Can Be Placed Or Moved on the Sudoku Board



DAREBEE WORKOUT @ darebee.com

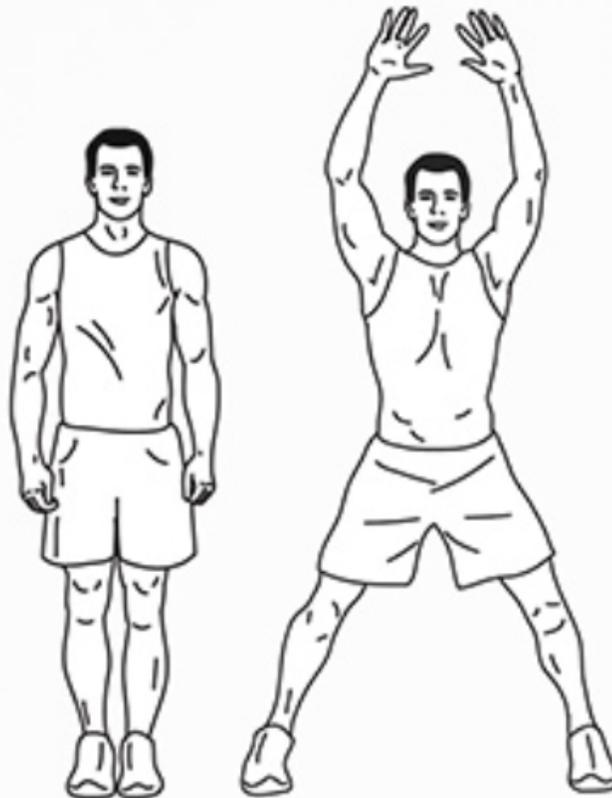
Mountain Climber

Keys To Success

1. Keep Arms Under The Shoulder
2. Bring Knee To Chest
3. Return To The Starting Position
And Repeat With Your Left Leg

Fitness Sudoku Exercise Task Card

This Exercise Must Be Performed Ten (10) Times Before It Can Be Placed Or Moved on the Sudoku Board



DAREBEE WORKOUT @ darebee.com

Jumping Jack

Keys To Success

1. Feet Together/Hands Down
2. Explode Up
3. Hands Up/Legs Wide
4. Return To Starting Position

Fitness Sudoku Exercise Task Card

This Exercise Must Be Performed For Ten (10) Seconds Before It Can Be Placed Or Moved on the Sudoku Board



DAREBEE WORKOUT © darebee.com

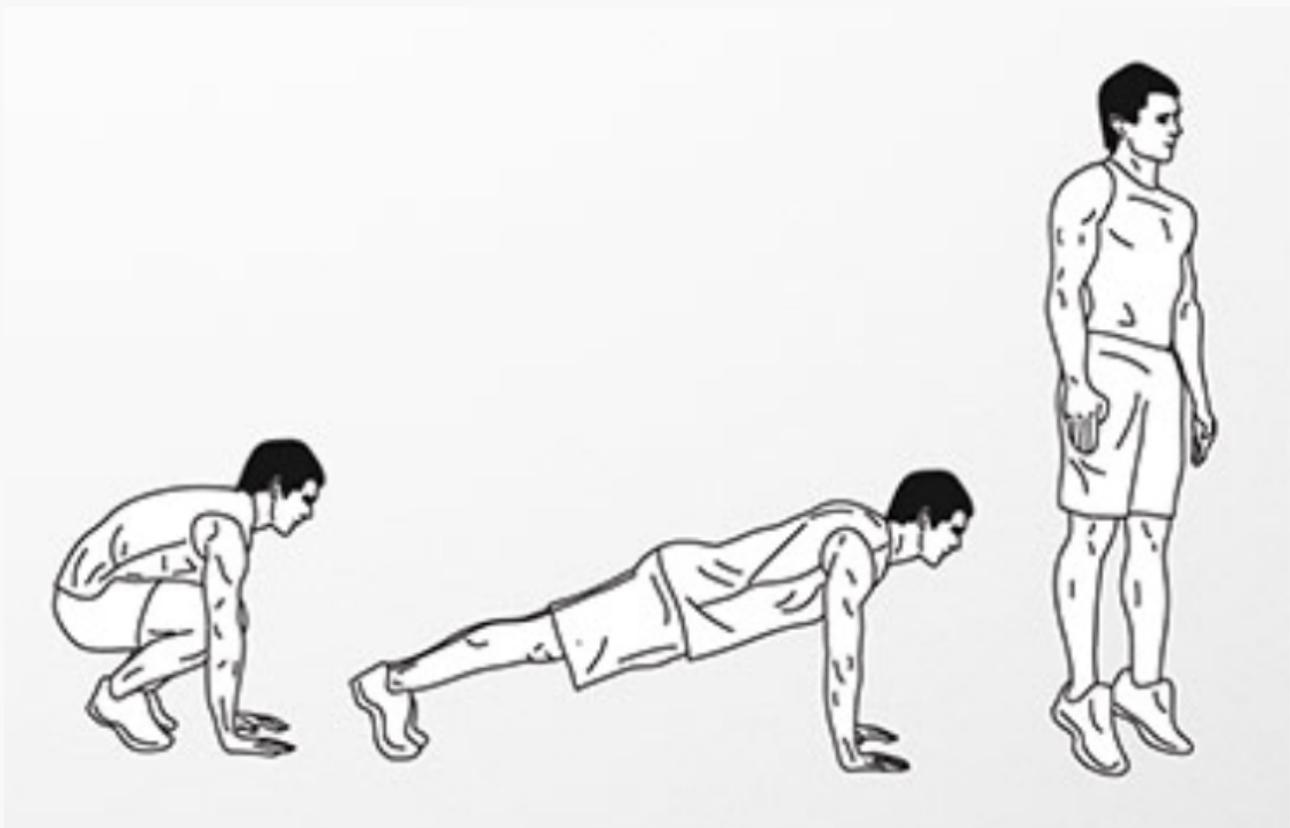
Elbow Plank

Keys To Success

1. Feet Together
2. Keep Hips, Knees & Shoulders In Line
3. Abs Tight
4. Head Facing Ground (Neutral Spine)

Fitness Sudoku Exercise Task Card

This Exercise Must Be Performed Three (3) Times Before It Can Be Placed Or Moved on the Sudoku Board



DAREBEE WORKOUT © darebee.com

The Burpee: Keys To Success

1. Keep Knees Inside Arms
2. Kick Feet Straight Out
3. Explode up
4. Soft Knees On Landing