Week 27 – Lesson 14 – Simple Machines – April 17, 2017

Don't forget the Science Fair project. Here is the link.
https://drive.google.com/open?id=0B8fKtb0MDku0SzFQUDBMRFc1eGc

This week we learned:
A lever is a bar that goes up and down over a point. That point is called a fulcrum. The load is the thing being lifted.

There are 3 different kinds of levers: 1)First class levers – has the fulcrum in the middle. The effort (force) is on one side and the object being moved (load) is on the other. 2) Second class levers – load is between the fulcrum and the effort. ex. - wheelbarrows, rickshaws 3) Third class levers – has the effort between the fulcrum and the load. ex. A fishing pole, tweezers, stapler.

Pulleys – lets you pull down a rope, chain, etc to lift something. A pulley itself is a wheel with a groove the rope fits in the groove. A single pulley has one wheel. A double pulley has 2 wheels that are connected.

Wheels & Axles – an axle is a rigid bar that is inserted through a hole in the wheel. A gear is a wheel that has teeth along its edge.

Here are most of the worksheets I handed out in class:
https://www.havefunteaching.com/product/worksheets/science-worksheets/energy-worksheets/pulleys-worksheet/
http://www.timvandevall.com/science/simple-machines-worksheets-six-simple-machines-for-kids/ - I used all 3 of the worksheets on this page.
http://www.abcteach.com/documents/science-wheel-and-axle-upper-elem-25088
http://delibertad.com/worksheets/types-of-levers-worksheet.html – from this site I took the pages called "Label the parts of the levers" and "Figure 3.6 Three classes of Levers"

Homework for this week:
Finish up your Science Fair Experiment
Finish reading Chapter 14
Write 2 facts on pg 205
Finish Machines We Use on pg 206 – do 2 examples of each type of machine
Finish the Vocab ID on pages 207 & 208

Week 26 – Lesson 14 – Simple Machines – April 9, 2017

Don't forget the Science Fair project. Here is the link.
https://drive.google.com/open?id=0B8fKtb0MDku0SzFQUDBMRFc1eGc

This week we learned:
A machine is any device that changes the amount of force you have to use to get anything done.

A compound machine is a combination of different simple machines working together.

We will look at 6 simple machines: inclined plane, the pulley, the screw, the wedge, the lever, the wheel and axle.

Inclined planes – an incline plane is a flat surface whose ends are at different heights. Stairs and ladders are also incline planes.

A screw is an inclined plane wrapped around a cylinder or cone. Archimedes screw is often used to lift water up.

A wedge is a simple machine used to push things apart.

We'll continue learning about simple machines next week by going into more detail about levers, pulleys, and wheels & axles.

Homework for this week.
Read Lesson 14
Write 3 facts from book onto page 204.
On pg 206 Machines We Use give 2 examples of machines for Inclined planes, Twisting planes (screws), and Wedges – we'll finish this up next if you want to do the rest.
Do pages 207 & 208 Vocab ID for the ones we covered so far. It can be finished next week.
Do an experiment and write up in the journal on pg 213.

Extra Resources
There are a ton of videos on YouTube but here are a few I found:
https://www.youtube.com/watch?v=LiarGb_LK10
https://www.youtube.com/watch?v=fvOmaf2GfCY
https://www.youtube.com/watch?v=ByLXZCP4ixc
https://www.youtube.com/watch?v=LAAwZird80k
https://www.youtube.com/watch?v=Zj_iWiXUZX8
https://www.youtube.com/watch?v=eOX5X6KLpL8
https://www.youtube.com/watch?v=yOxc3Bmr60A – I have not watched all of this video
https://www.education.com/worksheet/article/simple-machines/

https://www.education.com/workbook/simple-machines-workbook/ - here is a workbook to buy if your child is really into simple machines
https://www.education.com/worksheet/article/simple-machines-screw/
https://www.education.com/worksheet/article/simple-machines-wedge/
https://www.education.com/worksheet/article/inclined-plane/
http://www.kidsdiscover.com/free-lesson-plans/tg-simple-machines/

Lesson 13 – Week 25 – April 3, 2017

We are only spending one week on this lesson instead of the usual 2. Don't forget the Science Fair project. Here is the link.
https://drive.google.com/open?id=0B8fKtb0MDku0SzFQUDBMRFc1eGc

This week we learned:
A magnet is any object that attracts and/or repels certain metals.
They also produce a magnetic field – like a force around the object.
Magnets are everywhere – around the house, in medicine, offices.
Metals that are strongly attracted to magnetite are called ferromagnetic.
Whenever an electron is spinning inside an atom it creates a tiny magnetic field. When these fields occur, we say the atom has a magnetic moment.
Diamagnetic substances have a weak response to magnets. (They have an even # of electrons so the electrons cancel each other out)
Paramagnetic substances are slightly attracted by a magnetic field (usually have a n odd # of electrons)

We went over this packet in class:
https://www.teacherspayteachers.com/Product/My-Magnet-Book-Freebie-372363

We filled in this booklet. If they did not finish the book please have them finish it.
https://www.teacherspayteachers.com/Product/Magnet-Mini-book-Template-652933

I handed out these two worksheets in class. Please finish them.
https://www.teacherspayteachers.com/Product/Magnetism-Word-Search-173833
https://www.education.com/download/worksheet/107555/magnetic-monster.pdf

Homework for this week:
Read Lesson 13
Write 3 facts on pg 186. And define these words: Magnet, ferromagnetic, and paramagnetic.

Do pg 188 in the notebooking journal. Choose 3 objects you think are magnetic and 3 that are not.

Finish the worksheets handed out in class and staple into the journal. You do not need to do both the wordsearch in the book and the handout. You can choose which one you want to do.

Do an experiment from the lesson and write it up in the journal.

Lesson 12 – Week 24 – March 27, 2017

This week we learned:
Circuits and how they work. We discussed open and closed circuits and the flow of electricity. We created an electrical circuit using a flashlight bulb, battery, and wire to learn how electricity flows.
The following videos would be good to watch: Designing Electric Circuits: Door Alarm, Designing Electric Circuits: Steadiness Tester, and Experimenting with a Lemon Battery.

Homework for this week:
Complete the circuit book we put together in class and finish the 3 worksheets, if you did not complete them in class.
Complete all of Chapter 12 in your NJ and textbook. (we did not grade them this week in order to give them a chance to complete everything)
Link to circuit book:
https://www.superteacherworksheets.com/electricity/electricity-mini-book_WMNND.pdf?up=1466611200

Lesson 12 – Week 23 – March 20, 2017

This week we learned:
Positive and negative atoms attract each other – like magnets, same charges repel each other.
Static electricity is stored energy.
Capacitors store static electricity - they are made with 2 plates separated by an insulator – one plate stores positive charges and one stores negative charges.
A current is like a stream of electrical energy that flows without stopping.
An insulator is a protective shield against the flow of electrons.
Electric current is a flow of electricity through a conductor.
Metals are good conductors. Liquids are also good conductors.
Electricity can't continue to flow unless it's running through a circuit.
Electricity gets to you house through the electric grid. The grid includes 3 things – power plants, power lines, and transformers.

Homework for this week:
1) Read Lesson 12 (we will be going over circuits next week so it would be helpful to read the whole chapter)
2) List 3 facts from the chapter and write down on pg 169.
3) Do pg 171 Which Items Conduct Electricity in the NJ. Please pick at least 4 things to test. Directions are on pg 214 in the textbook. I'll post a few other worksheets that may help in extra resources.

4) Start working on pgs 173 & 175 the Vocab Lift the Flap. We haven't gone over everything so it does not need to be finished.
5) Start working on the Electricity Accordion Books on pgs A53 & A55. They need to be placed on pg 179. It can be finished next week.
6) Do an experiment and write up on pg 181.

Extra Resources
https://www.youtube.com/watch?v=YPBrQfCGvxk
https://www.superteacherworksheets.com/pz-electricity.html
http://primaryleap.co.uk/primary-resources/1858/Year+4/Science/Unit+4c+Keeping+warm/Insulator%20or%20conductor%201/#.WNCSb0faveQ
https://www.tes.com/teaching-resource/conductors-and-insulators-6065604
https://c03.apogee.net/contentplayer/?coursetype=kids&utilityid=pseg&id=16185
http://www.physicsclassroom.com/class/estatics/Lesson-1/Conductors-and-Insulators
https://www.thoughtco.com/examples-of-electrical-conductors-and-insulators-608315
https://www.havefunteaching.com/product/worksheets/science-worksheets/energy-worksheets/electricity-worksheet-page-2/
http://www.k12reader.com/worksheet/charge-it/

Week 22 – March 13, 2017 – Lesson 11 Thermal Energy
I handed out this sheet to help start planning their science project, please hand it in next week.
https://drive.google.com/open?id=0B8fKtb0MDku0TmJadjBpeS00N2c
Here is the link to the science fair project page:
https://drive.google.com/open?id=0B8fKtb0MDku0SzFQUDBMRFc1eGc

This week we learned:
Radiation – heat that transfers through air – like a space heater, the heat coming off of a stove top or the heat coming off a fire.
Convection – heat transfer in fluids – both liquids and gases: boiling water, hot air in certain types of ovens, warm air moving out over cold water.
Conduction – occurs when heat flows from a warmer thing to a cooler object. Example – heat from hot chocolate making a spoon hot.
Insulators – an insulator does not transfer heat well. Examples of good insulators are glass, wood, plastic, and rubber.
We went over good and bad uses of fire.
Combustion - a chemical process in which some material reacts quickly with oxygen to give off heat.
Fire triangle represents the 3 things needed to start a fire – fuel, heat and oxygen.
Heat will move molecules – as things heat up the molecules will move more.
Temperature measures how active the molecules are in the substance. There are 3 different scales we use to measure temperature: Fahrenheit, Celsius, and Kelvin.

Homework for this week:
Read the rest of Lesson 11
I handed out this worksheet, write definitions for radiation, conduction and convection and give examples of each. Place it on pg 157 in the NJ.
https://www.teacherspayteachers.com/FreeDownload/Convection-Conduction-and-Radiation-Foldable-1094897 – it is free so if you need it just download it.
I handed out this worksheet and place it on pg 163 in the NJ.
https://www.teacherspayteachers.com/FreeDownload/Heat-Energy-Insulators-Cut-and-Sort
Do either pg 158 or 159 in the NJ. Directions are on pg 199 in the textbook.
Do the Vocabulary Crossword on pg 160.
Do an experiment and write up on pg 165 or 166.

Extra Resources:
http://www.mansfieldct.org/schools/mms/staff/hand/convcondrad.htm

http://machinedesign.com/whats-difference-between/what-s-difference-between-conduction-convection-and-radiation

http://www.edinformatics.com/math_science/how_is_heat_transferred.htm

http://davezan.com/worksheet/conduction-convection-and-radiation-worksheet.html

Lesson 11 – Week 21 – Thermal Energy – March 6, 2017

Here is the link to the science fair project. It is due the last week of class. I will post a sheet due in a few weeks later.
https://drive.google.com/open?id=0B8fKtb0MDku0SzFQUDBMRFc1eGc

This week we learned:
Thermal energy: is heat energy.
Thermodynamics is the study of thermal energy.
Zeroth law of Thermodynamics – if 2 objects are in thermal equilibrium it means they do not transfer heat – If not in equilibrium heat flows from the hot object to the cold object.

1st Law – energy cannot be created or destroyed.

2nd Law – Talks about entropy (chaos or disorganization) Everything goes towards being disorganized.

3rd Law – as things are cooled (going towards absolute zero) entropy decreases – it becomes less disorganized.

Radiation – energy that moves through space. Heat that moves through empty space is radiant heat.

Convection is heat that transfers in fluids, liquids and gases. Hot air rises and cold air falls. Hot water boils and the colder water goes down.

Conduction occurs when heat flows from a warmer object to a cooler object.

Homework for this week:
Read Lesson 11 through pg 192. We will go over conduction, radiation and convection again next week.
Print off this booklet and put onto page 156 in NJ.
https://drive.google.com/open?id=0B8fKtb0MDku0b2dYczNUaVVpZ0k
Do an experiment and write up on pg 165.

Extra resources: please note I have not read everything on all pages listed to screen for a creationist vs non-creationist world view.
http://www.physics4kids.com/files/thermo_laws.html
http://study.com/academy/lesson/entropy-lesson-for-kids.html

https://science.wonderhowto.com/how-to/wrap-your-head-around-concept-entropy-359069/ - I did not watch all of this video so you may want to preview first.
https://f5t25.wordpress.com/
https://www.pinterest.com/pin/652318945812504 32/

Week 20 – Lesson 10 – February 27, 2017

This week we learned:

We talked about the upcoming Science Fair. These projects are due the last day of co-op. Here is the link to your instructions. If you have any questions please feel free to ask. https://drive.google.com/open?id=0B8fKtb0MDku0SXZIUktNNUVyRTg

White light will separate into colors if shone through a prism.

Animals see differently than us. Insects often see in UV and deer see similar. They see shorter wavelengths as well. Snakes often see in infrared.

We see because light comes into our eyes not because it comes out.

They talked about how colors mix with Mr. Crouch.

If an object is **reflective** it causes light to bounce off of it. An example is a mirror. Light will bounce off at the same angle that it hit the object.

Bending of light is called **refraction**.

We went over these worksheets in class:
https://www.education.com/worksheet/article/light-and-reflection/
http://imperialdesignstudio.com/refraction-worksheet/ - we only did the reflection and refraction worksheet with the flashlights

Homework for this week:
Finish reading Lesson 10.
Do the Light Fan, found on pg A39-A44 and place it on pg 149. Definitions or examples of the terms are fine.
Do an experiment from the book and write it up in the journal.

A few extra resources:
https://www.education.com/worksheet/article/prism/
https://www.education.com/worksheet/article/how-are-rainbows-formed/
https://www.colormatters.com/color-matters-for-kids/how-animals-see-color
http://www.kidsdiscover.com/teacherresources/the-world-through-animal-eyes/
https://askabiologist.asu.edu/colors-animals-see

https://www.visualnews.com/2013/04/08/hidden-patterns-how-a-bee-sees-the-world-of-flowers/
http://displays.tpet.co.uk/#/ViewResource/id905

Week 19 – Lesson 10 – February 20, 2017

This week we learned:

The is sun is a huge ball for burning gas. It is made up of hydrogen and helium. Hydrogen is joining with helium to make helium. This happens over and over again. It is called nuclear fusion because the particles are fusing or joining together.

When light leaves the sun it radiates in all directions. To radiate means to spread out in all directions from the center. So we call all light radiant energy.

Light travels faster than anything in the universe. 186,000 miles per second.

Light travels in a straight line. It can pass through some objects but not others.
It can travel through things that are transparent but not opaque.

Light creates electrical and magnetic fields. It is called electromagnetic energy.

All the colors we see make up the color spectrum or visible spectrum.
All the colors we can't see make up the invisible spectrum.

Colors with higher frequency than violet are called ultraviolet. They have shorter wavelengths.

Infrared have longer wavelengths and they generate heat.

We did this worksheet in class:
https://drive.google.com/file/d/0B4BBB3IfaIaNLTZscDBLSldFU0U/view
It is from this website:
http://mrsgroomsroom.blogspot.com/2016/01/i-teach-first-linky-light-and-shadows.html

Homework for this week:
Read Lesson 10 up to the top of page 172.
Give 4 facts from this lesson and place on pg 142 in NJ.
Do the Vocabulary Match-up pg 146 in NJ.
Do an experiment either from the book or from the ones I've posted below.

Extra resources:

https://www.pinterest.com/pin/647393133745621 47/ - This is a good graphic on the light spectrum but I couldn't find the actual page when I went to go check it out.
http://tnlearn.pbslearningmedia.org/resource/47861fd4-683a-4924-b490-3d53055309af/47861fd4-683a-4924-b490-3d53055309af/
https://www.teacherspayteachers.com/Product/Light-A-mini-book-about-light-NGSS-aligned-2345201 – This looks like a good minibook. But you do have to pay for it. It is not required, just extra if you want to do it with your child.
https://www.education.com/worksheet/article/light-through-objects/ - a good worksheet – feel free to use this for your experiment if you want.
https://d43fweuh3sg51.cloudfront.net/media/alfresco/u/pr/The%20Jim%20Henson%20Company/Sid%20the%20Science%20Kid%20Let%20There%20Be%20Light_47861fd4-683a-4924-b490-3d53055309af/SFL210Light_printable.pdf – here is another activity that could be good for an experiment.
https://www.education.com/worksheet/article/transparent-translucent-opaque/ - this worksheet is similar to one above but would also be good for an experiment.

Week 18 - Lesson 9 – February 6, 2017

Note: I am working on the instructions for the Science Fair Projects and will hopefully have them ready next week. I will post a link if I get it ready before Monday but will hand out a copy to the students when I get it finished.

This week we learned:
Frequency of sound waves – distance between each wave or how many waves there are in a given period of time (ex. 10 waves in one second).

We measure frequency in Hertz (Hz).
A low sound will have a low frequency. (Like how a tuba sounds)
If a sound is too low for the human ear to hear it is called **infrasound.**

A high sound will have a high frequency (like a how a flute sounds)
If a sound is too high for use to hear it is called **ultrasound.**

We talked very briefly on echolocation and sonar. We also looked at a few ultrasound pictures of one of my children.

I passed out kits to make harmonicas. Feel free to use these to do your experiment. On the website it gave two different ways to make the harmonica but you could experiment with other ways, which way worked best and if you could make more than one sound or pitch. Here are a few links for making harmonicas:
http://www.housingaforest.com/popsicle-stick-harmonica/
http://mybaba.com/craft-stick-harmonica/
http://mayamade.blogspot.com/2010/07/diy-harmonica.html

http://deceptivelyeducational.blogspot.com/2013/06/2-diy-craft-stick-harmonicas.html?m=1

Homework for this week.
Finish reading Lesson 9 in the book.
Do the Instrument Story on pg 131 in NJ. Instructions are on pg 162 in the textbook. If your child would rather do a drawing or a cartoon feel free to do that. They are also welcome to do something more about echolocation or sonar.
Define these words: infrasound, ultrasound, and sonar. Place on pg 130 in NJ.
Finish the Vocab seek and find if not done on Pg 132 in NJ.
Do an experiment and write up in the notebooking journal. You can test out the harmonicas, use one from the book, another one from the resources below or something else you've found.

Some Extra Resources:
http://files.havefunteaching.com/free-worksheets/grade/third/science/sounds-worksheet-1.pdf

http://tundra.cnx.rice.edu:8888/contents/33c21290-30ff-46a1-a9bf-7713a376ca87@16

http://www.ishoptoday.com/prod_learning_about_sounds.htm – found this ebook. If you were interested in it, this is something you would have to purchase. Certainly not required for me but it could be good if you wanted to go in depth into sound.
http://askabiologist.asu.edu/echolocation – page on echolocation.
http://www.bestinfographics.info/dolphin-communication/ - another page on echolocation.
http://www.kcedventures.com/blog/the-science-of-sound-waves-an-awesome-experiment-for-kids – this looks like a cool experiment.

Week 17 – 1-30-17 Lesson 9

This week we learned:

Sound is a vibration – it flows out from its source in waves.
The moving vibration is the sound wave.

An echo is a sound you hear a second time – soon after the 1st time . It is a sound bouncing back and returning to its source.

The air conducts the sound to our ears. To conduct means to lead something from one place to another.

Sound can travel through liquids and solids. It travels best through solids, especially metals.

Mach 1 is the speed of sound through air (which is 760 miles per hour). If anything travels faster than this it is called **supersonic speed.** We often say it broke the sound barrier and it will produce a sonic boom when that happens.

Sound waves – in a loud sound the waves are high and tall. The height of a wave is called the amplitude.

We measure how loud or soft a sound is in **decibels.**

We also made string telephones to demonstrate how sound vibration works.

Homework for this week:

Please read Lesson 9 pg 146 – 155.
Write 3 facts about sound on pg 129 in Notebooking Journal.
Do the Vocabulary seek and find on pg 132 in NJ.
Do this worksheet and place on NJ pg 135.
https://drive.google.com/file/d/0B8fKtb0MDku0SXZIUktNNUVyRTg/view?usp=sharing
Do one experiment and write up on pg 137 in NJ.

Here are some other useful links and videos:
http://www.slideshare.net/hinsz/5th-grade-chapter-14-section-2-what-is-sound-energy
https://www.education.com/download/worksheet/109674/what-is-sound.pdf
http://kidsactivitiesblog.com/14753/teaching-kids-how-sound-is-made - this looks like a good experiment if you would rather use this than one that is in the book.
https://www.youtube.com/watch?v=3-xKZKxXuu0

Week 16 – Lesson 8 – Work in the World

What we learned this week:

Some important forms of energy:
Chemical Energy – energy stored in the bonds of chemical compounds – like the energy inside a grain of corn or a banana. We “burn” food for energy. Other fuel that’s burned for energy – wood, natural gas, oil and coal.

Fossil Fuels – fossilized forms of energy – energy is transferred to the ground from fossils into different forms of stored energy – examples: oil, natural gas, coal.

Oil reservoirs are huge lakes of oil – companies can drill for oil on land and in oceans.

Coal is made up of dead plants that turned into carbon.

Natural gas – fossils can make a gas (methane), we call this natural gas – its made naturally under the earth.

Nuclear Energy – most plentiful source of energy – the energy found inside the nucleus of a single atom. When an atom splits it releases huge amounts of energy.

Renewable energy – energy from sources that don't run out.

Energy that doesn't produce chemicals and waste is called clean energy.

Hydropower – the power of water

Hydroelectricity – electricity from water. We often use dams to help with this.

Wind Energy – the wind turns huge blades called turbines which creates electricity.

Solar energy – energy from the sun. collected with solar panels.

Solar Thermal collectors are designed to collect the sun's heat.

Solar cells – thin plates that turn solar energy directly into electricity. Photons from the sun hit the silicon, they excite the electrons in the silicon which creates electricity.

Biofuels – energy types that come from living things. Corn and sugarcane are often grown for this.

They produce ethanol.

Geothermal – using the heat from inside the earth.
Hydrogen – when hydrogen atoms are separated it creates a lot of of energy.

Homework for this week:

Read the rest of Lesson 8
Vocabulary ID pg 120 in NJ

Finish the Energy Matchbook placed on NJ pg 123 found on pgs A31, 33, & 35. Please write facts about each type. This can include a definition, pros/cons or examples.
Do one experiment from the chapter and write it on NJ pg 125 or 126.
The Letter to the Editor NJ pg 118 (directions in the textbook pg 144) is optional.

Week 15 – Lesson 8 – Work in the World – January 16, 2017

This week we learned:

Energy is the ability of someone or something to do work. Work is about making something move

There are 2 kinds of mechanical energy – Kinetic and Potential

Kinetic Energy – is energy in motion. Examples – ocean's crashing waves, sound that moves in waves, people running

Potential Energy- energy that is stored up – waiting to be used.
Gravitational Energy – when potential energy is dependent on gravity.
Law of Conservation of Energy- states that energy is protected and preserved. It cannot be created or destroyed, it can only be converted.

Homework for this week:

Read Lesson 8 pgs 126 – 130.
Pg 116 in NJ list 2 examples of Kinetic energy and 2 examples of Potential Energy.
Pg 119 Vocabulary ID (Pg 120 will be done next week).
Pg 123 The Energy Matchbook found in NJ pgs A31, 33, & 35. Cut out put together and write definitions for pg A31 (A33 & 35 will be done next week)
Do one experiment from book or other source. Write out on pg 125.

Some good resources – videos and experiments:
https://www.youtube.com/watch?v=2Z3VoxvUOks
https://www.youtube.com/watch?v=Jnj8mc04r9E
https://www.weareteachers.com/exploring-potential-and-kinetic-energy/
http://www.kidsdiscover.com/teacherresources/a-lesson-in-potential-and-kinetic-energy/

https://www.dcmp.org/guides/TID7457.pdf
http://inspirationlaboratories.com/kinetic-energy-experiments-and-activities/

Here is a good worksheet to go through.
http://www.schoolofdragons.com/resources/potential-or-kinetic
(This is just if you want to use it. It does not need to be turned in to me.)

Week 13 – Lesson 7 – Dynamics of Motion

What we learned today:

Gravity and Friction are two forces that affect the motion of an object.
Friction is a force that works against motion. It is a force that holds back the movement of an object. Friction is an opposing force, meaning it works in the opposite direction of motion.
Friction can be good. An example of this is brakes on a bike.

If you double the force used when objects are pressed together, you double the amount of friction.

Traction is the friction between 2 objects that keeps them from sliding across each other.

Adhesion is the sticking together of 2 different materials. **Cohesion** is when the material is sticking to itself.

A **lubricant** is a substance that reduces friction. Oil is an example – it is important for machines to work properly.

Air & water also create friction. This is called **drag**. Drag is the friction that slows an object as it moves forward through air or water. The shape of an object affects the amount of drag. When an object is shaped in a way that enables it to travel through the air more easily (drag is reduced) it is called **aerodynamic**.

Homework for this week.

Read Chapter 7 up to Grasping Gravity on pg 116.

On NJ pgs 103 & 104 give examples of friction, adhesion, cohesion and drag.
On NJ pg 105 design a race car or airplane.
From NJ pgs A27 & 29 cut out the Forces of Motion minibooks and place on NJ pg 109. In the friction and adhesion books put definitions of the terms. Save the other book for next week. It is fine if you want to leave it in the back.

Do at least one experiment either from the books or from the 2 links below.

A few extra experiments that I found that looked good to try (completely up to you if you want to do them):

http://carrotsareorange.com/friction/
http://www.craftcreatecalm.com/2016/11/ice-science-experiment/

Newton's Second and Third Laws of Motion

2nd Law of Motion- Acceleration is produced when a force acts on a mass. The greater the mass If you push an object, that object pushes back in the opposite direction equally hard. (we made balloon boats as an example)

Homework for this week:
Read the rest of your textbook pages for chapter 6.

Complete the rest of Chapter 6 in your Notebooking Journal. The students were given the 4 brads they need to complete their pages.

Week 11- Lesson 6- Mechanics in Motion

This week we learned:

Newton's First Law of Motion states an object at rest stays at rest and an object in **motion**stays in **motion** with the same speed and in the same direction unless acted upon by an unbalanced force. Everything is basically lazy. An object wants to keep doing what it is already doing.

Homework for this week:
Read your textbook pages 97-102 (up to Newton's 2nd Law)

Notebooking Journal page 83- Draw a picture of Newton's First Law of Motion and explain, then draw a picture of inertia and explain. (both can be found in your textbook)
NJ page 86- glue all the flaps but only fill in the first law info. (we will do the next 2 flaps next week)
NJ page 95 or 96 copywork page

Here is the experiment we did in class. (the students were to fill in the bottom and bring it back). Have them tell you about our results.
http://www.plyter.com/science/pdf.folder/inertia.balldrop.pdf

Videos we watched in class:
https://www.youtube.com/watch?v=OHw80HXSuAQ

https://www.youtube.com/watch?v=KvPF0cQUW7s

http://teachertech.rice.edu/Participants/louviere/Newton/law1.html

Week 10 – Lesson 5 – Multitude of Mixtures

This week we learned:

Alloys occur when we mix metals together. Metals are dissolved into other metals to form a metal solution. Examples of alloys – brass; steel; stainless steel. Mixing metals is the job of chemical engineers.

In a **colloid** the particles are larger than the particles in a solution but smaller than the particles in a suspension so it is between a solution and a suspension. The particles do not settle cannot be separated out by ordinary filtering or centrifuging like those in a suspension. A colloid may look homogeneous but the particles are actually big enough to be seen with a microscope. Milk is an example of a colloid. The particles in a colloid scatter light. This is called the **Tyndal effect.** Examples of colloids: a gel – like pudding, mayonnaise, salad dressing.

Diluted vs. Concentrated
Concentrate has a large amount of solute in the solvent.
A **Saturated solution** is a solution that has reached the point where no more solute can dissolve in the solvent.

Mixtures are physically combine not chemically. This means they can be separated.
Ways to separate mixtures:
Evaporation – if mixed with water you can separate this way – heat can speed this along.
Filtration is used to allow a liquid to seep through a substance that traps larger particles, letting only the pure liquid through.
Sifting – another method used to separate large or important parts of a mixture. This is much like filtration but with dry components.
Magnetism is used to separate mixtures that have highly magnetic metals in them.
Chromatography – a method that separates particles as they move across a certain material that attracts components differently.
We did one other worksheet in class to compare diluted vs concentrated and I will try to get that posted later today.

Homework for this week:
Find 3 facts for alloys, colloids and separating mixtures and place on NJ pages 70 & 71.
Finish the Separating Mixtures lift book on NJ page 77 from A 21.
Do the Vocabulary ID on NJ pages 73 & 74.

Do one experiment either from the book, one you've found, or one of the chromatography experiments listed below. Write it down on NJ pages 79 & 80.

Here is a video from Mr. Crouch's portion of the class:
Sorry, I'll get this fixed in a little bit.

Here is a worksheet I handed out in class to help with compounds vs. mixtures.
https://drive.google.com/open?id=1cZUUQ2woUtBadqXRL3bn3HzM6jlll_Cbl6eld1zaEGg

A few good examples and experiments of chromatography:

https://www.khanacademy.org/test-prep/mcat/chemical-processes/separations-purifications/a/principles-of-chromatography
http://www.explainthatstuff.com/chromatography.html

http://www.chemguide.co.uk/analysis/chromatography/paper.html

https://www.exploratorium.edu/science_explorer/black_magic.html

http://www.makeandtakes.com/rainbow-marker-coffee-filters

https://www.youtube.com/watch?v=kqlKHO29zOk

Week 9 – November 7 – Lesson 5 Multitude of Mixtures.

The poster project is due November 14. Here is the link to the instruction page: https://docs.google.com/document/d/1K54tADtJHWvFfQf8YmJ06t-RFIHc5s75hqdGIAbvyUw/edit

This week we began talking about mixtures. We talked about **heterogeneous** mixtures (hetero meaning different) which are mixtures when you can actually see the different components and **homogeneous** mixtures (homo meaning same) when you cannot see the different components.

A **suspension** when larger particles are mixed into smaller particles.

A **solution** occurs when one substance is dissolved into another substance. A **solute** is the substance being dissolved (think salt in salt water) and a **solvent** is the substance doing the dissolving (think the water in salt water).

We also talked about hydrophilic heads and hydrophobic tails in aqueous solutions. Hydrophilic meaning water loving and hydrophobic meaning water fearing.

Homework for this week

Read the first part of Lesson 5 up to Alloys on pg 88.
2 Facts on mixtures and solutions on NJ pg 70.
NJ pg 72 Heterogeneous and Homogeneous mixtures around the house, try to find 3-4 each.
Begin Separating Mixtures NJ A21 Goes on NJ pg 77. We have only covered the first 3 topics on this chart so it can be finished next week.
Find and experiment either online or in the book to do.

Extra videos and blog posts to help out this week.

http://thesciencepenguin.com/2014/08/new-year-new-notebook-physical-changes-and-mixtures.html#_a5y_p=2404713

http://scientiflix.com/post/124827678460/chemical-changes-crash-course-kids-192-by – this video has a lot about chemical and physical changes so its a good reminder but it also talks about solutions.
https://www.pinterest.com/pin/64739313373805610/
http://sciencewithme.com/learn-about-solutions/

Here is the list for the element poster in case you don't remember which element your child received:

Carson – Magnesium - Mg
Caeden – Boron – B
Hannah – Neon – Ne
Janson – Helium – He
Michaela – Gallium – Ga
Norah – Iodine – I
Rebecca – Barium – Ba
Colton – Krypton – Kr
Sydney – Bromine – Br
Truitt – Nitrogen – N

Week 8 – October 31 – Lesson 4 – Compound Chemistry

The poster project is due November 14. Here is the link to the instruction page: https://docs.google.com/document/d/1K54tADtJHWvFfQf8YmJ06t-RFlHc5s75hqdGlAbvyUw/edit

This week we learned:

Polymer molecules are arranged in long chains of lots of repeating small molecules (monomers) over and over again.

We made polymer chains using strips of paper. Here is a good link with an additional project if interested:
http://leftbraincraftbrain.com/2014/05/08/polymer-science-homemade-fruit-gummies/#_a5y_p=2109725

Acids are hydrogen loving compounds and like to bond to hydrogen from other compounds. They often taste sour.

Bases want to give away their hydrogen atoms. They are often slick or slippery feeling. Acids and Bases are measured on a pH scale. pH stands for potential for Hydrogen.

We also talked about chemical and physical changes. Physical changes change the chemical structure of the compound. While physical change just change the look of the compound not the chemical structure.

Homework for this week:

Read the rest of Lesson 4 in the textbook.
Do the Vocabulary Seek and Find on NJ pg 60.
Do the Compounds Tuck-In Envelope on NJ pg A17 & 19. They go on NJ pg 63.

Supplemental videos:
https://www.youtube.com/watch?v=qqqmFFCwd7k – this is about chemical & physical changes.
https://www.youtube.com/watch?v=DupXDD87oHc – this is about acids and bases.

Week 7 – October 24 – Compound Chemistry

This week we talked about crystals. We talked about different kinds of crystals including gemstones and snowflakes.

We also made crystals using toothpicks and marshmallows.

Homework for this week:

Read pg 62 – 66.

Write 2 Facts NJ pg 57 and draw a crystal structure in one of the boxes on NJ pg 57.

Try to make your own crystals or do the “Try this” on pg 63. There are a few on NJ pg 64. Here are a few more links to help. Feel free to find your own.

http://www.kidzworld.com/article/26598-make-your-own-crystals

http://www.wikihow.com/Make-Salt-Crystals

http://www.wikihow.com/Make-Salt-Crystals - If you decide to try this one, be sure to read some of the comments. It looked like there was more info there that would be helpful that wasn't included in the actual instructions.

I also handed out some instructions for the poster project. Here is the link for the handout that also includes some more instructions. I think next week may have more homework so this may be a good time to work more on the poster.

In case you’ve misplaced your students assigned element here is the list:

Carson – Magnesium - Mg
Caeden – Boron – B
Hannah – Neon – Ne
Janson – Helium – He
Michaela – Gallium – Ga
Norah – Iodine – I
Rebecca – Barium – Ba
Colton – Krypton – Kr
Sydney – Bromine – Br
Truitt – Nitrogen – N

Week 6 – October 17 – Lesson 3 Building Blocks of Creation

What we learned this week

Clouds, Shells, and orbitals
Each electron is assigned to a particular energy level – these are called **Orbitals** or **Electron Shells.**
Valence Electrons are the electrons in the outer shell.
Some atoms have a different number of neutrons and protons – these are called **Isotopes.**
Some bonds form by sharing their valence electrons – this is called a **Covalent Bond.**
An **ion** does not have the correct number of electrons (it either has more or less than the number of protons giving the atom an overall charge – either positive or negative)
When an atom steals an electron from another atom it gains an electron. It will also form a bond – this is called an **Ionic Bond**.
If the atom gained an electron (giving it an overall negative charge) it is called an **anion**.
If the atom lost an electron (giving it an overall positive charge) it is called a **cation**.

We also made Fluorine compounds with paper plates showing covalent bonds.

Homework this week:

Finish reading the chapter in the book.

Finish the facts on NJ pg 43 & 44. Finish the Building blocks Layered book on A13.

Finish the Vocabulary Match-up on NJ pgs 47 & 48.

Do either the Covalent Bond Comic or the Ionic bond comic on NJ pg 45 & 46. The directions are in the textbook on pg 60.

October 10 – Week 5- Lesson 3 – Building Blocks of Creation

This week we learned:

Atoms are the building blocks of creation. An atom is the smallest particle of an element that still keeps the properties of that element.

There are about 94 elements that occur naturally, created by God. These are called **Naturally Created Elements**. And about 25 elements that humans have created. These are called **synthetic elements**.

All atoms have the same basic structure.
When 2 or more different atoms are combined they form a molecule.
A compound contains at least 2 different elements combined.
3 things are inside an atom: **neutrons, protons, and electrons**.
Some atoms are attracted to each other and some are repelled by each other. Meaning some want to join together and some want to move away. This is called **charge**.
Protons are positively charged.
Electrons are negatively charged.
Neutrons have no charge.
Atoms usually have the same number of electrons and protons. So they do not have a charge.
The number of protons tells us the **atomic number** – this also tells us what the atom is. (Helium – 2 protons; Carbon – 6 protons; Oxygen 8 protons; etc)
Neutrons do not add charge but they are pretty big so they do add mass.
The Nucleus is the center of the atom. This is where neutrons and protons are. **Mass number** is the number of protons and neutrons.

Homework for this week:

Read the book (pg 43 – 51 Clouds, Shells, and Orbitals)

2 facts on the Building Blocks pg 43 & 44 in NJ. (4 total for this week and next)

Start the Layered Book – gets glued in on pg 51 in NJ. It is from A13 & A15 with instructions on pg A15. It can be finished next week.

Do either pg 47 or pg 48 in NJ (the other page will be done next week if you want to do both now)

Do The “Try This!” on pgs 49 & 50 in the book. They are a continuation of the same experiment. Use whatever you want for the protons and neutrons it doesn't have to be candy. You don't have to put the plates in the NJ but try to either take a picture or just write it up and put onto pg 53 or 53 in NJ.

Week 4 October 3 – Moving Matter

This week we learned

Gas is a state of matter full of moving atoms. The atoms move in random ways.

Atoms in gases move faster than liquids

Looking at boiling water you can see the water atoms going crazy with all kinds of energy

Boiling point is the temperature when a liquid changes to a gas.

Gases do not have a specific volume or shape. They will take on the shape and volume of their container.

Condensation point is when a gas becomes a liquid.

We watched this video in class: https://www.youtube.com/watch?v=5SfEdexMgo8

Homework this week:

Read pages 35 (Gas Matter) – 42

Finish up Matter Facts NJ pg 26-27, Matter Wheel (A9 & A11 goes on pg 37) , and the Vocab lift the flap (NJ pg 31 & 33).

Do at least one experiment in Lesson 2 – Moving Matter.

We did hand out the elements for the posters. This will be due November 14 (week 10) and it will be worth 50 points.
Here is the list of elements each student received:

Carson – Magnesium - Mg
Caeden – Boron – B
Hannah – Neon – Ne
Janson – Helium – He
Michaela – Gallium – Ga
Norah – Iodine – I
Rebecca – Barium – Ba
Colton – Krypton – Kr
Sydney – Bromine – Br
Trivitt – Nitrogen – N

Week 3 – September 26 – Lesson 2 Moving Matter

This week we learned:

There are 3 main states of matter – gas, liquid, and solid
Solid – atoms do not move around very much
Liquid – atoms flow more than solids but still stay close together
Gas – Full of energy – atoms moving around a lot.

Solid – has a specific shape but the atoms still move around. **Freezing point** is the temperature a liquid turns into a solid. When matter goes from solid to liquid is **melting point**.

Liquids are substances that are free to flow with no particular shape. They do have a particular volume. Atoms in a liquid prefer to stick together. Water molecules have a special bond that holds them together. They form and invisible "skin" this is called **surface tension**.

Viscosity is the thickness or resistance to flow in a fluid. We can change viscosity by changing the temperature.

Atoms in liquids are more energetic than solids because they are warmer.

We worked on a worksheet this post in class:
http://www.mrsthompsonstreasures.com/2016/03/states-of-matter-fun.html

Homework for this week:

Read pgs 30 – 35 (up to Gas Matter)

Do a total of 4 facts on Moving matter (2 this week and 2 next week) NJ pg 26-27.

Start working on NJ pgs A9 & A11 – The Matter Wheel – this goes on NJ pg 37 and can be finished next week. (Instructions are on pg A9) (a brad was sent home with your student to be used in the wheel – it was taped onto the states of matter project we did in class)

Start working on NJ pg 31 & 33. Vocabulary Lift the Flap - this can be finished next week.

The coloring pages NJ 24 & 25 are up to the parent. They are optional.
The Matter pockets NJ pg 28 & 29 is up to the parent. The instructions are in the book pg 41. This is also optional.

Some good videos to watch about the states of matter.
https://www.youtube.com/watch?v=wclY8F-UoTE
https://www.youtube.com/watch?v=nw8KaHglokQ

Week 2 September 19

This week we learned about:

We reviewed what we learned last week about matter, volume, mass and density.

Buoyancy is the ability of something to float. It is buoyant because of the upward push of water. This goes back to density. If an object is less dense than the liquid it is in it floats.

Last week we talked some about properties of objects like color, shape texture. Other properties to consider are hardness, luster, malleable, and ductility. **Luster** is the amount of shine an object has. **Malleable** refers to materials that are bendable. Sometimes this is also called plasticity. **Ductility** is whether or not something can be made into a wire.

We also learned about the Scientific Method.

Homework for this week:

Read pg 23 (Buoyancy Basics) – pg 29.

Crossword puzzle NJ pg 16.

Copy work NJ pg 17 or 18. Parents can decide if they want their student to do print or cursive.

Do at least one experiment in the book (Chapter One) or notebooking journal and write it up on pages beginning on pg 21. The students received this worksheet for the scientific method to use when writing up their experiment. You can just glue it into the journal. Here is the link: https://www.teacherspayteachers.com/Product/Scientific-Method-Foldable-Freebie-746104
I only used one page out of the unit but there may be more information you may find relevant to you.

Finish anything from last week....Matter flap book (a simple definition of the word on the flap is fine), Archimedes play, Matter Facts.

Here are a few good videos to watch if you choose.

https://www.youtube.com/watch?v=nMIXU97E-uQ&feature=youtu.be – You may want to preview this video since it does have a drawn Archimedes jumping out of the bath.

https://www.youtube.com/watch?v=eQuW8G2QV_Q&feature=youtu.be

Next week if time permits I am going to try to assign the elements to the students for their fall project.

Science Week 1 September 12

This week we learned about:

- Chemistry and Physics is the study of matter and energy.
- **Energy** is what makes everything in the world work, move and do things.
- Scientists are interested in different **properties** of the world around them – properties are special features, traits. Attributes of materials found in the universe. Being able to describe properties is important too.
- **Matter** is anything that takes up space no matter how big or small. Matter has volume and mass. It is made up of atoms. Atoms are particles that make up everything around you.
- **Volume** is the amount of space something takes up.
- **Mass** tells us how much matter is inside something.
- **Density** is how much mass is in a certain volume of matter.

Homework for this week is:

Read pages (in the textbook) 15-23 up to Buoyancy Basics.

Put the Creation minibook together (pg A1 NJ – this will go on the front cover of the NJ) – it is up to the parent to decide how much or how little they want to use this minibook.

Begin working on the Matter Facts pages NJ pg 13-14 – do 6 facts total for this week and next week. It is fine if the student dictates the facts to the parent but they need to do their own copywork. (Can finish next week)

Begin working on coloring pages NJ pg11-12. (Can finish next week)

Begin working on Matter Flap book NJ A7. (Can finish next week)

Begin working on Archimedes Play NJ 15. Pictures are fine if you do want to write everything out.
It is talked about in book pgs 18-19. (Can finish next week)

Choose at least one of the experiments on the pages in the reading in book or on NJ pg 20 and write that up beginning on NJ pg 21. (2 experiments can fit on each page)

Teacher: Angela Fay
email: angpfay@yahoo.com

Hi I am Angela Fay. I will be teaching science for grades 1-2 and 3-4. This should be a fun year and we will be using a fun book. We will roughly be following the schedule that is laid out in the Notebooking Journal but any changes will be posted on the Google docs page.

I plan on having our students do a small fall project and a science fair experiment in the spring. I will give you more info about the science fair closer to that time.

For the fall project I want the students to make a poster about an element from the periodic table of elements. I will assign the kids an element to avoid having 12 projects all about oxygen. I will give you more info about this later regarding what I expect and a grading scale. This will be due November 14 (week 10) and it will be worth 50 points.

Grades will be given on a point basis and points will be given every week for participation in class (10 points possible) and for having the notebooks completed (10 points possible). They will alsoo need a tab in their binder for any pages that do not go into the notebooks. I will put a page in the front cover of their notebook with the points for each week. It would be helpful if you would initial each week in the space provided. There are some coloring pages and copywork in the notebooks, it is up to the parents discretion if they want their student to complete the entire coloring page and if they want them to do the printed or cursive pages.

Please feel free to email me with any questions. My email is at the top of this page.