Grades 6 – 8 Science Resources for proposed curriculum changes

Online textbooks resource - http://www.ck12.org/teacher/ scroll down to look at the text

8th Grade Science

Life Science Component	
Standard	**Resource Explanation and web link**
Growth, Development, and Reproduction of Organisms MS-LS3-1, MS-LS4-5	• **Genetics** resources, animations, interactive simulations http://learngenetics.com/ • **Biodiversity; classification; evolution** resources http://eol.org/ • **Dragon Genetics** - an interactive simulation that allows you to change the alleles of dragons and witness the phenotype changes. You have https://www.google.com/accounts/AddSession?service=wise&continue=https://docs.google.com/document/d/1Sl8wiao1GYd-8UfXYF7p0eJTc1GF8dXvRzxW2aICTVw/editto complete a certain number of steps before it allows you to move on. This is good, students cannot click quickly through it. http://biologica.concord.org/webtest1/web_labs_genophenotype.htm • Tooth Pick Fish lab activity shows **genetics & natural selection** in action click here • http://agbiosafety.unl.edu/education/whowants.htm- Students become the "pilots" for engineering organisms to become more resisant to predation, herbicides, and pesticides. • This would be a great place to introduce the topic of GMOs. There is a lot of research out there. Articles can be taken and made into close reads. Class debates could be used as well. Debates and argumentative essays can be linked to the CCSSs.
Natural Selection and Adaptations MS-LS4-1, MS-LS4-2 MS-LS4-3, MS-LS4-4 MS-LS4-6	• **HHMI BioInteractive** - many real-life examples of evolution in the short films section, as well as good history of the theory. http://www.hhmi.org/biointeractive • **Understanding Evolution** - lots of good teacher resources, background information, and rebuttals for difficult parents http://evolution.berkeley.edu/ • **Stated Clearly** - short video animations that explain What is Evolution, What is Natural Selection, Evidence for Evolution • Examining the Fossil Record at BiologyCorner.com to download a fossil record activity.
Earth Science Component	
Standard	**Resource Explanation and web link**

Space Systems MS-ESS1-1, MS-ESS1-2 MS-ESS1-3	• ESS1-1 **(Earth's Moon and its phases)** http://www.moonconnection.com/ Everything you need to know about the MOON! Great for a web quest/scavenger hunt/discovery activity. • **Moon Phases** - Search "Oreo Cookie Moon Phase" There are many lesson plans that come up. Many that come up are for K-2, but they can be altered for middle school. • **Seasons Interactive** where you can change the angle of the planet • http://www.sciencewear.net/lunar-cycle.html • http://concord.org/ngss/?gclid=CIWFx7D2p8ICFYqIfgodoEwA9Q- navigate NGSS standards. Access to interactive lessons on **solar system, scales of planets and orbits**, and analysis of different planets. • https://solarsystem.nasa.gov/planets/profile.cfm?Object=Moon&Display=Educ&Page=1 Lesson plans with models of the e**arth/moon/sun relationships** • http://www.exploratorium.edu/ronh/solar_system/ **Build a model of the solar system**. Fill in the diameter of the Sun you want your model to be scaled by. • http://www.lpi.usra.edu/education/workshops/phasesSeasons/ Several lesson plans for building **scale models of the solar system**. Contains common season and moon misconceptions. • http://www.lpi.usra.edu/education/resources/s_system/moon.shtml Lessons/ activities for **lunar phases, eclipses, formation, geology**, and missions. • http://www.nasa.gov/topics/universe/ • http://spacemath.gsfc.nasa.gov/YOSS/YOSS.pdf - 360 page pdf with 5th through 12th grade single page activities. • https://sites.google.com/site/sciencemrshardt/earth-space-science/astronomy - Phases of the moon simulator and songs. Many links to sites featuring simulators. • https://phet.colorado.edu/en/simulation/gravity-and-orbits - Simulator that allows students to manipulate the size of the sun and Earth to see how gravity, orbit, and velocity will be affected. • http://sunshine.chpc.utah.edu/Labs/Tides/index.html - SImulator that allows students to manipulate variables to see how orbits and tides are affected. Simulator includes multiple bodies orbiting a single star. • https://phet.colorado.edu/en/simulation/projectile-motion - Projectile motion simulator. • http://hubblesite.org/explore_astronomy/black_holes/modules.html - Virtual Hubble telescope allows students to view bodies by visible light, x-rays, or radio waves. • Neil de Grasse Tyson on aliens. Interesting perspective. http://www.wimp.com/onaliens/

Physical Science Component	
Standard	**Resource Explanation and web link**
Waves and Electromagnetic Radiation MS-PS4-1, MS-PS4-2 MS-PS4-3	• **PhET Simulations** http://phet.colorado.edu/en/simulation/wave-on-a-string • **Evolution of TV to Digital format from Analog**. http://www.pbs.org/opb/crashcourse/ • **Analog vs. Digital** http://telecom.hellodirect.com/docs/Tutorials/AnalogVsDigital.1.051501.asp http://www.diffen.com/difference/Analog_vs_Digital • Explore Learning- **Waves** MS-PS4 MS-PS4-2 http://www.explorelearning.com/index.cfm?method=cResource.dspStandardCorrelation&id=1891 • http://www.physicsclassroom.com - Math applications and explanations for everything PHYSICS. • http://www.discoveryeducation.com/teachers/free-lesson-plans/the-electromagnetic-spectrum-waves-of-energy.cfm - types of waves, the energy of waves, parts of waves, and electromagnetic spectrum. Includes vocabulary, discussion questions/techniques, student presentations, rubrics, and extension activities. • Reading Resource for wave behaviors http://missionscience.nasa.gov/ems/03_behaviors.html
Energy MS-PS3-1, MS-PS3-2	• **Veritasium Videos** http://www.youtube.com/user/1veritasium • **Mass and KE** lab lab and answer key • **Mass and KE** lab http://www.energyeducation.tx.gov/pdf/113_inv.pdf • BUY this kit to **launch different masses at the same KE** (buy one and make the rest?) https://us.vwr.com/store/catalog/product.jsp?product_id=10548221 • **Work, Energy, and Power simulations** on PhET http://phet.colorado.edu/en/simulations/category/physics/work-energy-and-power • http://www.physicsclassroom.com - Math applications and explanations for everything PHYSICS. • http://www.physics.unl.edu/~fulcrum/resources/RS_Activities/KINETIC%20AND%20POTENTIAL%20ENERGY-1.pdf - PE vs KE packet. Uses example of bows and arrows, height-weights-and can crushing, roller coasters. Complete with a lab using ramps of varying heights, balls of varying masses, and calculations of PE and KE.
Forces and Interactions MS-PS2-1, MS-PS2-2 MS-PS2-3, MS-PS2-4 MS-PS2-5	• Veritasium Videos http://www.youtube.com/user/1veritasium • Explore Learning http://www.explorelearning.com/index.cfm?method=cResource.dspStandardCorrelation&id=1891 • Trash for Teachers - aligned to NGSS - look under middle school section http://www.trashforteaching.org/programs/we-support-you-classroom-after-school-resources/physics/

	• http://www.physicsclassroom.com - Math applications and explanations for everything PHYSICS. • http://powayusd.com/teachers/kvalentine/LAWS%20OF%20MOTION/Inertia%20Lab/Inertia%20Activity.doc. Inertia Activity using index cards, three objects with different masses, and a Jar. Objective is to see if force and mass affect the inertia of objects. • http://cse.ssl.berkeley.edu/SegwayEd/lessons/exploring_magnetism/Exploring_Magnetism/index.html - Magnetism and Unseen forces. Using compasses to explore magnetic forces. Worksheets and supplements are included. NASA based, applies to space and celestial bodies. • RESA has lesson plans already aligned with NGSS. Support materials are also present. Find link called Engineering, Momentum, and Impulse http://www.resa.net/curriculum/curriculum/science/professionaldevelopment/ngss-pd/lesson-plans-exploring-ngss/ • RESA has lesson plans already aligned with NGSS. Support materials are also present. Find link called Newton's 2nd Law - 7th grade http://www.resa.net/curriculum/curriculum/science/professionaldevelopment/ngss-pd/lesson-plans-exploring-ngss/ • http://www.gk12.iastate.edu/classroom_projects/documents/Newton's%20Mini%20Labs%20Final.pdf - Newton's laws of Motion mini stations. 4 stations that examine the relations of force, motion, and constant speed by investigating using washers.

7th Grade Science

Life Science Component	
Standard	**Resource Explanation and web link**
Structure, Function, and Information Processing MS-LS1-1 MS-LS1-2 MS-LS1-3, MS-LS1-8	• Better Lesson-lessons submitted by teachers for all four standards www.betterlesson.com • http://participatoryscience.org/standard/ms-ls1-8-good mini lesson on reaction time • Discovery World-lessons for educators http://www.discoveryworld.org/education/middle-school/labs/thirst-lab/ • Onion and Cheek Cell Lab: Students can use a microscope and see cells from an onion and from their own cheek. *www.asdk12.org/staff/kenney_joe/.../39756_**onion**cheek**cell**.pdf* • The Innovative Technology in Science Inquiry project engages students in STEM activities through the integrated use of technologies that include modeling, computational thinking, and real-time data acquisition. This comprehensive project will assist teachers in preparing diverse students for STEM careers by engaging them in exciting, inquiry-based science projects. http://itsi.portal.concord.org/home
Growth, Development, and Reproduction of Organisms MS-LS1-4, MS-LS1-5, MS-LS3-2	• DRI-Hydroponics-all lessons aligned with NGSS, culminating activity-students design an experiment to grow a plant in different media and determine their own variables. http://www.dri.edu/greenpower • This lesson is a four day lesson addressing LS1-4 and LS1-5. This lesson does use a variety of items that may not be easily found.If you have the time and resources it may be very beneficial and engaging. *www.crscience.org/lessonplans/5-Plants_True_Colors-PMB_12-13.pdf* • http://www.nclark.net/Genetics-lots of different labs and activities that are aligned with NGSS. • http://mrscmiddleschool.wordpress.com/science/life-science/genetics-heredity-and-dna/-lots of different labs and activitiesthat are aligned with NGSS.
Earth Science	
Standard	**Resource Explanation and web link**
History of Earth MS-ESS1-4, MS-ESS2-2 MS-ESS2-3	• **SEPM Activities and Lessons** - includes Paleogeographic Mapping, Plate Movements and Climate Change, Determining Diet of Ancient

	Animals, Modeling an Explosive Volcano, Seafloor Spreading, and many more: http://www.beloit.edu/sepm/activity-age.html • **The Paleontology Portal** - can click through different time periods to see a description of the paleontology and geology of that time, and a gallery of fossils found. Can look specifically at Nevada. • Short video that relates the age of the Earth to a timeline students can better relate to https://www.youtube.com/watch?v=tkxWmh-tFGs
Earth's Systems MS-ESS2-1, MS-ESS3-1	• Resources showing **weathering, erosion, and deposition** http://science-class.net/Geology/weathering_erosion/WED.htm • Earth science activities http://geocntr.org/education-resources/classroom-activities/ • Video (3min) explains Carbon's role in Global Climate Here! • Discovery video provides overview of Earth's magnetic field https://www.youtube.com/watch?v=yEYy_nVC4L0 • Rock Cycle computer interactive http://www.learner.org/interactives/rockcycle/index.html
Human Impact MS-ESS3-2, MS-ESS3-4	• http://www.getwise.org/ design ways to **reduce environmental impacts due to human use of resources**. Become a better saver on utilities and waste less. Replenish earth's water supply with desalination plants. Games and fun for students, resources for teachers. • http://www.nature.org/greenliving/carboncalculator/?matchtype=b&creative=33211791470&device=c&network=g&src=sea.AWG.PR0.CP131.AD159.KW11243.MT1.BU132&gclid=CPP2yZOiqMICFUdefgodg04ArQ - Calculate your carbon footprint and see what you use on a daily basis and how it impacts the environment and world we live in. • **Human Impact on Earth's Systems** lincoln8**science**.weebly.com/**human-impact**-of-**earth-systems**.html •
Physical Science Component	
Standard	**Resource Explanation and web link**
Chemical Reactions MS-PS1-2, MS-PS1-5 MS-PS1-6	• American Chemical Society Middle School chemistry curriculum. Free downloadable lesson plans, units and labs. http://www.middleschoolchemistry.com/lessonplans/ • Community Resources for Science - This is a link to a lesson plan to demonstrate chemical changes. It looks like there are additional resources but this is a site you have to pay to subscribe to. http://www.crscience.org/lessonplans/5-Chemical_Reactions-Asha_Leera_12-13.pdf • This is a specific lesson on chemical changes. www.middleschoolchemistry.com has a plethora of lesson and labs that can be downloaded at no charge.

	http://www.middleschoolchemistry.com/lessonplans/chapter6/lesson1 ●
Structure and Properties of Matter MS-PS1-1, MS-PS1-3	● PBS Learning Media: ● AIM's Chemistry Matters Book: Chemistry Matters is filled with hands-on activities that are organized into five sections: properties of matter, changes in matter, conservation of matter, reactions in matter, and organization of matter and the periodic table. Also included are several student mini-books that provide reading in the content area. http://store.aimsedu.org/item/p-1217/chemistry-matters-5-7/1.html ● Explore Learning- Matter and its interactions MSPS1-1- MSPS1-4 MSPS1-5 ● http://www.explorelearning.com/index.cfm?method=cResource.dspStandardCorrelation&id=1891 ● nclark has been a science teacher for 37 years and has compiled all of their resources from teaching and posted them on their website. There are a ton of lesson activities, resources, and labs. http://www.nclark.net/Chemistry

6th Grade Science

Life Science Component	
Standard	**Resource Explanation and web link**
Matter and Energy in Ecosystems MS-LS1-6, MS-LS1-7 MS-LS2-3, MS-LS2-1 MS-LS2-4	• **NOVA Illuminating Photosynthesis**. http://www.pbs.org/wgbh/nova/nature/photosynthesis.html • Mosa Mack Science Detective ($59 to purchase a unit) http://www.mosamack.com/ • **FOSS Populations and Ecosystems Course** http://www.fossweb.com/module-summary?dDocName=D1488228 • http://science-class.net/archive/science-class/Ecology/energy_transfer.htm Games, crosswords, and activities for food webs, food chains, and energy flow through trophic levels.
Interdependent Relationships in Ecosystems MS-LS2-2, MS-LS2-5	• To explore and verify that soil erosion is affected by the makeup of the soil using plant roots, rocks, and the slope of the land as experimental factors. http://sciencenetlinks.com/lessons/soil-erosion/ • Many lessons and hands-on activities all about soils and topics related to soils. http://www.soils4teachers.org/lessons-and-activities • The learners experiment with a natural water filtration process. They review the water cycle and come to an understanding about the need to sustain the quality of the world's water for the common good. http://learningtogive.org/lessons/unit389/lesson2.html • The **FOSS Populations and Ecosystems Course** explores ecosystems as the largest organizational unit of life on Earth, defined by its physical environment and the orga http://learningtogive.org/lessons/unit389/lesson2.htmlnisms that live in the physical environment. Students learn that every organism has a role to play in its ecosystem and has structures and behaviors that allow it to survive. • Entire unit with inquiry activities and teacher support materials http://oceanservice.noaa.gov/education/yos/curriculum/ecologybyinquiry.pdf • https://www.fossweb.com/module-summary?dDocName=D1488228 • UNR's Mobile Engineering Education Lab- Environmental Engineering http://www.unr.edu/engineering/research-and-outreach/k-12-outreach/me2l
Earth Science Component	
Standard	**Resource Explanation and web link**
Weather and Climate MS-ESS2-5, MS-ESS2-6 MS-ESS3-5	• http://sciencespot.net/Pages/classearth.html#Anchor-Weather-49575 • **Weather Lessons** http://beyondpenguins.ehe.osu.edu/issue/weather-and-climate-from-home-to-the-poles/hands-on-science-and-literacy-lessons-about-weather-and-climate • **Weather and Climate** Lesson Plans http://earth2class.org/curr_units/

	• **Description:** Earth Science units and topics containing: *Vocabulary (alpha & by sub-topic), Key ideas, Selected labs & activities, Selected websites, Core concepts.* • Selected lab: http://earth2class.org/curr_units/wx%20&%20clim%20labs.php http://www.cposcience.com/home/ForEducators/MiddleSchoolEarthScience/tabid/261/Default.aspx • **Description:** Short introductory videos w/ graphic organizers, worksheets,student record sheets, teaching transparencies • *Site also contains links to Life and Physical science curriculum* http://impact.sp2.upenn.edu/ostrc/doclibrary/documents/CombinedNaturalDisastersToolkit.pdf Comprehensive unit Project based unit with a variety of lessons centered on weather and climates based on a real world problem. · ESS2-5 http://www.earthsciweek.org/classroom-activities/earths-hydrologic-cycle http://www.classzone.com/books/earth_science/terc/content/visualizations/es2002/es2002page01.cfm?chapter_no=visualization (animation of cold front and warm front) http://www.earthsciweek.org/classroom-activities/sky-and-cloud-windows (sky checks) · ESS2-6 https://www.youtube.com/watch?v=0j6oi1fdo5E (video on global circulation) · http://www.skepticalscience.com/earths-climate-system.html (detailed description of earth's components and their role on the rise in global temperature. http://www.earthsciweek.org/classroom-activities/exploring-climate-change-gis · ESS3-5 http://www.skepticalscience.com/earths-climate-system.html (detailed description of earth's components and their role on the rise in global temperature. http://www.earthsciweek.org/classroom-activities/exploring-climate-change-gis Ilulissat Glacier in Western Greenland. The calving event lasted for 75 minutes and the glacier retreated a full mile across a calving face three miles wide. The height of the ice is about 3,000 feet, 300-400 feet above water and the rest below water. https://www.youtube.com/watch?v=hC3VTgIPoGU • Spherical presentation of the major climate and weather events on the planet. Find it at http://sphere.ssec.wisc.edu/

	• NOAA and NASA have joined forces to create the ultimate weather web site for middle-school students. SciJinks offers exciting and accessible content, games, and multimedia. There are videos, printable images and posters, and help for teachers. The site also provides content by topic, such as clouds, tides, oceans, atmosphere, seasons, and satellites http://scijinks.jpl.nasa.gov/

Earth's Systems
MS-ESS2-4
	• Water cycle http://pmm.nasa.gov/education/lesson-plans/exploring-water-cycle
	http://earth2class.org/curr_units/
	
	• **Description:** Earth Science units and topics containing: *Vocabulary (alpha & by sub-topic), Key ideas, Selected labs & activities, Selected websites, Core concepts.*
	http://www.cposcience.com/home/ForEducators/MiddleSchoolEarthScience/tabid/261/Default.aspx
	
	• **Description:** Short introductory videos w/ graphic organizers, worksheets,student record sheets, teaching transparencies
	• *Site also contains links to Life and Physical science curriculum*
	
	http://concord.org/stem-resources/will-there-be-enough-fresh-water
	• **Description:** This site has an online activity that allows students to explore water movement and predict water availability.
	  ○ Time required: 225 minutes for ts all 5 modules.
	  ○ Modules are: availability of fresh water, using fresh water, groundwater movement, groundwater and surface water, using groundwater wisely.
	
	http://www.earthsciweek.org/classroom-activities/investigating-water-use-your-home
	• **Description:** Water is often called a renewable resource, but what does that really mean? Is water an unlimited resource? What happens to water after we use it? This investigation will help you understand exactly how much water you use in your home and how you can keep from wasting water. If many people are participating in this investigation, work in small groups of 3-5. Before you begin, think about all the ways water is used in your home. How much water do you and your family use at home everyday? Record your thoughts and share them with others. Make a list that combines everyone's uses of water in their homes.
	
	http://www.earthsciweek.org/classroom-activities/earths-hydrologic-cycle

	• **Description:** Students will construct a simple model of the hydrologic cycle to help them visualize and understand the movement of liquid water and heat.
Human Impact MS-ESS3-3	http://earth2class.org/curr_units/ • **Description:** Earth Science units and topics containing: *Vocabulary (alpha & by sub-topic), Key ideas, Selected labs & activities, Selected websites, Core concepts.* http://www.cposcience.com/home/ForEducators/MiddleSchoolEarthScience/tabid/261/Default.aspx • **Description:** Short introductory videos w/ graphic organizers, worksheets,student record sheets, teaching transparencies • *Site also contains links to Life and Physical science curriculum* • UC Davis @Lake Tahoe TERC center. Research and impact on environment http://terc.ucdavis.edu/research/monitoring/index.html http://resources.has.concord.org/resources/teacher%20guides/LandTG2014.pdf • **Description:** In this module, students explore the resources that make up our agricultural system in order to answer the question: can we feed the growing population? Food production is faced with an ever-growing number of challenges. Growing enough food depends on the availability of resources such as arable land, sunlight, rain, and organic matter. Throughout this activity, students explore land uses and soil quality through graphs of land use and crop production. Students run experiments with computational models to compare the effect of different management strategies on the land. They will not be able to answer the module's framing question at the end of the module, but they will be able to describe how humans can maintain and replenish important resources to be able to produce food long into the future. http://concord.org/stem-resources/can-we-feed-growing-population • **Description:** The availability of resources affects how much food we can produce. Explore the interconnected resources that make up our agricultural system.
Physical Science Component	
Standard	**Resource Explanation and web link**
Energy MS-PS3-3, MS-PS3-4 MS-PS3-5	MS-PS3-3 • Green Building LEED - http://www.usgbc.org/leed • Good explanation of **Conduction, Convection, Radiation**, some practical applications for students:

	http://www.pbslearningmedia.org/resource/lsps07.sci.phys.energy.heattransfer/heat-transfer/ ● **Cooking Cookies with Solar power video**/discussion http://www.pbslearningmedia.org/resource/phy03.sci.phys.mfe.zsolar/cooking-cookies-with-solar-power/ ● Helpful resource for teachers to gain background knowledge http://www.physicsclassroom.com/class/thermalP/Lesson-1/Methods-of-Heat-Transfer ● Socks and Temperature Lab: **Heat Transfer Activity** http://www.cpalms.org/Public/PreviewResource/Preview/46119#/#standards-toggle ● Simulation testing **heat transfer** of different substances, at the bottom of the page, there are available premade activities to accompany simulation: http://phet.colorado.edu/en/simulation/energy-forms-and-changes ● Resource for kids: http://www.eschooltoday.com/energy/kinds-of-energy/what-is-thermal-energy.html ● **Build an insulated water bottle**: would give students an opportunity to build and test as described in the standard. http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=11&ved=0CF4QFjAK&url=http%3A%2F%2Fwww.powersleuth.org%2Fdocs%2FEHM%2520Lesson%25207FT.pdf&ei=Efd9VM3RO-iQigKP14GACA&usg=AFQjCNEY-sNwvvVpB5L4N5-M3bZoNpPnYA ● Build and Insulator: https://www.teachervision.com/childrens-science-activities/printable/39748.html ● UNR's Mobile Engineering Education Lab - Renewable Energy http://www.unr.edu/engineering/research-and-outreach/k-12-outreach/me2l ● Transfer of Energy link under Middle School - roofing materials project. http://www.resa.net/curriculum/curriculum/science/professionaldevelopment/ngss-pd/lesson-plans-exploring-ngss/ MS-PS3-4 ● Energy Conversion in a system simulation: http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=416 ● Phase changes http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=557 ● Law of Conservation of energy simulation with resources available on page http://phet.colorado.edu/en/simulation/energy-skate-park ● Law of conservation of energy "ball drop lab" http://webcache.googleusercontent.com/search?q=cache:olOJXD6fF5

	IJ:https://www.asee.org/conferences-and-events/conferences/k-12-workshop/2012/Ball_Drop_activity.pdf+&cd=5&hl=en&ct=clnk&gl=us MS-PS3-5 ● Acceleration, collisions, mass and Energy simulation http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=1055 ● Energy Screams: Kinetic energy transfer reading grade6 Roller Coasters. (need account but it is free to sign up) http://www.readworks.org/passages/energy-screams ● NEED (National Energy Education Development Project) There are a TON of energy resources. Here ● NREL (National Renewable Energy Lab) In Colorado, cutting edge Energy Projects. Here
Structure and Property of Matter MS-PS1-4	● **Online Resources:** ● This link is for ordering Foss kits for Matter and energy. There are currently four kits available. http://www.oesd.wednet.edu/Page/518 ● Phet Colorado is a website that provides online labs and simulation for all science concepts. These are student directed and several worksheet choices are provided for students based on grades and levels. Most worksheets are aligned to the standards and the standards are listed http://phet.colorado.edu/en/simulation/states-of-matter ● Chem for Kids is a website that provides comprehensive kid friendly articles that explain matter as well as all other chemistry related science concepts. The articles are easily printed and modified for close reads. The site also provides quizzes that accompany the reads. 6th grade teachers could easily fit this content into their "reading" curriculum. http://www.chem4kids.com/files/matter_states.html ● http://www.middleschoolchemistry.com/lessonplans/chapter1 ● http://www.middleschoolchemistry.com/lessonplans/chapter2 ● Song that reviews the entire periodic table all elements in order. http://youtu.be/zUDDiWtFtEM

General Science Resources:

- Sample NGSS assessment tasks can be found at this link http://www.nextgenscience.org/classroom-sample-assessment-tasks

- 3 minute videos created by scientists explaining their research to earn funding. Students vote on the best videos to determine winners. Offers short videos cutting edge science on various topics.

Annual opportunity to enroll your class. Can also view previous years winning videos. http://www.ocean180.org/

- Teaching Science through Case Studies has a ton of real-life, applicable case studies for all science content areas. Some of the Case Studies are really advanced but can be brought down to lower levels. Part I and II are usually doable for 7th and 8th grade students. The Case Studies provide a good resource for CCSS reading standards and reading in the content areas. Teacher Notes are free if you register with a valid Teacher email address that can be verified through a school webpage. Answer keys require a $25 fee to access click here

- This site is a site that has a huge library of articles for all content areas. the reading level can also be adjusted to fit the students. it is a great resource for science articles. https://newsela.com/

- Graphing Stories - good for practicing graphing. http://www.graphingstories.com

- Citizen Science resource for bird feeder sightings, bird nest cameras, bird ID, migration at http://www.birds.cornell.edu/Page.aspx?pid=1478

- AMNH Young Naturalist Awards - Many Essays written by students about real science they did. Good place to find readings by similar-aged kids, and could be a good contest to have kids participate in. I used it for this essay: A Beach Walk in New Mexico about fossils and how different ancient climates were to today's.

- http://tryengineering.org/ -Engineering lesson plans can be selected based on subejct and age range.

- Great Explorations in Math and Science (GEMS) books and kits available for check out at no cost. View the collection here. All topics in science covered in these hands on activities.

- NOAA data bases of various types some with ready made lesson plans which include interactive maps especially useful to address Human Impact standards.View the entire collection here.

- Mr. Jones Science http://www.sciencewithmrjones.com/handouts.shtml

- http://bigthink.com/ and https://www.youtube.com/user/bigthink
- http://www.iflscience.com/ General science content, controversial and current.
- http://www.earthweek.com/index.html Resource for current events in
- sciencehttp://www.pbslearningmedia.org/ media resources and lessons
- Free tool for writing up lab reports including sentence stems to differentiate for ELL&SpEd students