Science eLearning Guide – Week 2

Biology: Ecological Succession

- Summarize the role of microorganisms in both maintaining and disrupting the health of ecosystems.
- Describe how events and processes that occur during ecological succession can change populations and species diversity.
- Describe how environmental change can impact ecosystem stability.

Chemistry: Gas Laws Part 2

- Describe and calculate the relations between volume, pressure, and temperature as described by the ideal gas law
- Describe and calculate the relations between volume, pressure, and temperature as described by the Dalton's Law of Partial Pressure
- Describe and calculate the relations between volume, pressure, and temperature as described by Boyles' Law, Charles' Law, the ideal gas law, and Dalton's Law of Partial Pressure (Review of Weeks 1 and 2)

Physics: Magnetism

- Describe the concept of electromagnetic forces
- Identify and describe examples of magnetic forces and fields in everyday life

IPC: Law of Conservation of Mass Part 2

- Demonstrate that mass is conserved when substances undergo chemical change and that the number and kind of atoms are the same in the reactants and products.

Science eLearning Guide – Week 2
Biology

Objectives

- Describe how events and processes that occur during ecological succession can change populations and species diversity.
- Describe how environmental change can impact ecosystem stability.

Note: Tasks are not intended to be graded. This work is to support understanding of the subject area.

For Parents

- Print the following student sheet and scenario page for your child, if able.
- After your student has completed the above assignment, print this activity for your child.
- For this resource, please print and give your child the first page before the second so your child can make predictions.

For Students

- Use this interactive to explore the concept of ecological succession. Click on "Start a New Game," then click the Primary Succession button. Take note (written or typed) of the order in which organisms colonize the new land. Once finished, refresh your browser, "Start a New Game" choosing Secondary Succession. Once finished, refresh the browser, start a new game and click on the quiz.
- If unable to print, please answer the questions on the student sheet on a separate piece of paper. Use the scenario page to help you answer the questions.
- Once you have completed the above activities, try sequencing the order of succession events here. If unable to print, please answer this on a separate piece of paper.
- When finished with all of the above, please do the first page of this activity before looking at the second page. Answer questions on a separate piece of paper if unable to print.

AP Resources:

- Continue Week 1 work:
  - Take the diagnostic test for AP Biology and proceed through drills and practice based on your results. Log in directions
  - Find the corresponding Bozeman Science video tutorials for the areas you need support.

Resources

- http://www.countrysideinfo.co.uk/successn/summary.htm
- https://www.ck12.org/book/ck-12-biology-advanced-concepts/section/18.25/

< Week's Overview by SUBJECT

Science eLearning Guide – Week 2
Chemistry

Objectives

- Describe and calculate the relations between volume, pressure, and temperature as described by the ideal gas law
- Describe and calculate the relations between volume, pressure, and temperature as described by the Dalton's Law of Partial Pressure
- Describe and calculate the relations between volume, pressure, and temperature as described by Boyles' Law, Charles' Law, the ideal gas law, and Dalton's Law of Partial Pressure (Review of Weeks 1 and 2)

Note: Tasks are not intended to be graded. This work is to support understanding of the subject area.

For Parents

- If able to print, please print the following for your child: Ideal Gas Law practice; Virtual Lab guide; Evaluate - Ideal Gas Law Practice; Calculating Partial Pressure practice; Dalton's Laws practice
- Be sure your child has access to internet access and a technology device.

For Students

- Watch this video and take notes. Online textbook, read pages 371-373. No textbook access? Click here.
- Read through the Virtual Lab guide before opening the Using the Idea Gas Law virtual lab (will work on any tech device). Answer questions on the sheet if able to print or on paper if unable to print.
- Complete the Evaluate - Ideal Gas Law Practice problems on a separate sheet of paper or on the printout.
- Watch this video on partial pressure and take notes.
- Online textbook, read pages 353-355. No textbook access? Click here.
- Complete this Dalton's Laws practice on a separate sheet of paper if you cannot print.
- Check your knowledge by completing this online concept map.

AP Resources:

- Continue Week 1 work:
  - Take the diagnostic test for AP Chemistry and proceed through drills and practice based on your results. Log in directions
  - Find the corresponding Bozeman Science video tutorials for the areas you need support.

Resources

- Khan Academy - Dalton's Law of Partial Pressure
- HMH Chapter 11 Review Game: Gases

< Week's Overview by SUBJECT

Science eLearning Guide – Week 2
Physics

Objectives

- Describe the concept of electromagnetic forces
- Identify and describe examples of magnetic forces and fields in everyday life

Note: Tasks are not intended to be graded. This work is to support understanding of the subject area.

For Parents

- If you have access to a printer, please print: electromagnetic forces practice; magnetic forces practice; scavenger hunt; and electromagnetic virtual lab
- Please make sure your student has access to the internet and a technology device (chromebook, laptop, iPad/tablet, internet-connected cell phone, etc.)

For Students

- Watch this introduction to electromagnetism. If you have access to the online textbook, read pages 672-674. Do these practice questions.
- Watch this video about magnetic forces. If you have access to the online textbook, read pages 675-677. Do this sample problem before these practice questions.
- Do this online scavenger hunt for magnetism and electricity. Answer on a separate sheet of paper.
- If able, try this electromagnetic virtual lab. Flash is required!
- Read through this tutorial on motors, generators, and transformers. Then explore this interactive simulation of a variety of electromagnets. Click through the tabs at the top to start with the bar magnet and move through each tab. If needed, here is a youtube tutorial on motors, generators, and transformers.

AP Resources:

- Continue Week 1 work:
    - Take the diagnostic test for AP Physics and proceed through drills and practice based on your results. Log in directions
    - Find the corresponding Bozeman Science video tutorials for the areas you need support.

Resources

- https://studyjams.scholastic.com/studyjams/jams/science/energy-light-sound/magnetism.htm
- https://www.ducksters.com/science/physics/electromagnetism_and_electric_motors.php
- https://www.ck12.org/book/ck-12-physical-science-for-middle-school/section/25.3/

< Week's Overview by SUBJECT

Science eLearning Guide – Week 2
IPC

Objectives

- Demonstrate that mass is conserved when substances undergo a chemical change and that the number and kind of atoms are the same in the reactants and products.

Note: Tasks are not intended to be graded. This work is to support understanding of the subject area.

For Parents

- Please make sure your child has access to a technology device (chromebook, tablet, internet-connected cell phone, etc.) and internet.
- When your student is finished with the additional practice (google slides activity) share the answers with them.
- If able, please print: Balancing Equations document and Ion Charges Chart

For Students

- Practice balancing equations using this interactive.
    - First, click on the Introduction. There are three activities to try: Make Ammonia, Separate Water, and Combust Methane. Do all three - but start with making ammonia. Select the balance tool to help you identify when your equation is balanced. Once balanced, select the next scenario (separate water) and balance it.
    - When you have completed the introduction, refresh your browser. Select the Game. Start with Level 1 and work your way up to Level 3.
- For additional practice, balance the equations here on a separate sheet of paper. When finished, ask your parent/guardian for the answers!
- Follow the directions provided in this document and select equations to practice balancing on a separate piece of paper.
- If you need help with balancing equations with ions, please refer to this chart.

Resources

- https://www.youtube.com/watch?v=zmdxMlb88Fs
- https://preparatorychemistry.com/Bishop_Balancing_Equations_help.htm
- https://www.khanacademy.org/science/chemistry/chemical-reactions-stoichiome/types-of-chemical-reactions/a/complete-ionic-and-net-ionic-equations

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