



Science eLearning Guide – Week 8

Biology: Animal Systems Part 4

- Students will describe the interactions that occur among systems that perform the functions of transport, reproduction, and response in animals.
- Students will analyze the levels of organization in biological systems and relate the levels to each other and to the whole system.

Chemistry: pH Calculations & Neutralization

- Students will define pH and calculate the pH of a solution using the hydrogen ion concentration.
- Students will define acids and bases, distinguish between Arrhenius and Bronsted-Lowry definitions, and predict products in acid-base reactions that form water.

Physics: Quantum History

- Students will describe the significance of mass-energy equivalence and apply it in explanations of phenomena such as nuclear stability, fission, and fusion.
- Students will give examples of applications of atomic and nuclear phenomena such as radiation therapy, diagnostic imaging, and nuclear power and examples of applications of quantum phenomena such as digital cameras.
- Students will describe the concepts of weak and strong nuclear forces.

IPC: Reviewing Chemical Reactions & Conservation of Matter

- Students will recognize that chemical changes can occur when substances react to form different substances and that these interactions are largely determined by the valence electrons.
- Students will classify energy changes that accompany chemical reactions such as those occurring in heat packs, cold packs, and glow sticks as exothermic or endothermic reactions.

Biology - WEEK 8

Objectives

- Students will describe the interactions that occur among systems that perform the functions of transport, reproduction, and response in animals.
- Students will analyze the levels of organization in biological systems and relate the levels to each other and to the whole system.

Note: Beginning the week of April 14, and in alignment with our Adjusted Grading Guidelines, teachers in grades 6-12 may assign student work from the Digital Backpack eLearning guide, or from the teacher's itsLearning course, for a grade.

For Parents

- Please make sure your student has access to the internet and a technology device.
- If able, please print: this [digestive system](#) reading; and this [guide](#)

For Students

- Explore the digestive system with this [simulation](#): tinyurl.com/ybzgede7
- Read and answer the questions about the [digestive system](#): tinyurl.com/yb6t2rtl
- Check your understanding of the digestive system with this [concept map](#): tinyurl.com/y7u6nhes
- Explore the [female](#) (tinyurl.com/yd2tku9m) and [male](#) (tinyurl.com/y8bfhesx) reproductive systems.
- Check your understanding of the male & female reproductive systems with this [concept map](#): tinyurl.com/y7z6byg2
- Use this [guide](#) to help you research the impacts of environmental toxins on the reproductive system: tinyurl.com/y7yv64a2

AP Resources:

- Continue with the following:
 - 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.
- Continue, as applicable, with the review at: <https://apstudents.collegeboard.org/coronavirus-updates>

Resources

- Digestive system [tutorial](#): tinyurl.com/y7scqt4t
- Reproductive system [tutorial](#): tinyurl.com/y2tqc2gq

Chemistry - WEEK 8

Objectives

- Students will define pH and calculate the pH of a solution using the hydrogen ion concentration.
- Students will define acids and bases and distinguish between Arrhenius and Bronsted-Lowry definitions and predict products in acid-base reactions that form water.

Note: Beginning the week of April 14, and in alignment with our Adjusted Grading Guidelines, teachers in grades 6-12 may assign student work from the Digital Backpack eLearning guide, or from the teacher's itsLearning course, for a grade.

For Parents

- Please make sure your student has access to the internet and a technology device.
- If able, please print: these [directions](#); this [skillsheet](#); and this [concept check](#)

For Students

- Explore the concept of pH with this [simulation](#): tinyurl.com/kcak7c9
Use these [directions](#) to help you navigate it: tinyurl.com/yd6qdu6v
- Watch this [video](#) on calculating pH: tinyurl.com/yb36mcbs
- Try calculating pH with this [skillsheet](#): tinyurl.com/ybubokp4
- Explore the neutralization of acids & bases with this [titration simulation](#): tinyurl.com/ydyts3d6
- Watch this [video](#) on neutralization: tinyurl.com/yb4vtbep
- Check your understanding with this [concept check](#): tinyurl.com/ybvqo7z8

AP Resources:

- Continue with the following:
 - 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.
- Continue, as applicable, with the review at:
<https://apstudents.collegeboard.org/coronavirus-updates>

Resources

- Calculating pH [tutorial](#): youtu.be/OEW4-Sfyvik
- HMH Modern Chemistry [chapter](#): tinyurl.com/ybm2avpo

Physics - WEEK 8

Objectives

- Students will describe the significance of mass-energy equivalence and apply it in explanations of phenomena such as nuclear stability, fission, and fusion.
- Students will give examples of applications of atomic and nuclear phenomena such as radiation therapy, diagnostic imaging, and nuclear power and examples of applications of quantum phenomena such as digital cameras.
- Students will describe the concepts of weak and strong nuclear forces.

Note: Beginning the week of April 14, and in alignment with our Adjusted Grading Guidelines, teachers in grades 6-12 may assign student work from the Digital Backpack eLearning guide, or from the teacher's itsLearning course, for a grade.

For Parents

- Please ensure your student has internet access and a technology device.

For Students

- Watch this [introduction](https://tinyurl.com/y73e9x7L) to nuclear energy: tinyurl.com/y73e9x7L
Create a T-Chart and list your initial pros & cons of nuclear energy.
- Explore nuclear fission with this [interactive](https://tinyurl.com/y9sj2pbv): tinyurl.com/y9sj2pbv
- Explore nuclear fusion with this [interactive](https://tinyurl.com/ybsxsfhq): tinyurl.com/ybsxsfhq
- Go more in depth with this nuclear energy reading: (government site)
- Watch these two videos on strong nuclear forces: [video 1](https://tinyurl.com/ybdrLnL9) (tinyurl.com/ybdrLnL9) and [video 2](https://tinyurl.com/y9v33aod) (tinyurl.com/y9v33aod)
- Watch this [video](https://youtu.be/J4Ej3Q_QquA) on weak nuclear forces: youtu.be/J4Ej3Q_QquA
- Watch this [video](https://tinyurl.com/ybvqrkzo) on other uses of nuclear energy: tinyurl.com/ybvqrkzo
Revisit your initial pro/con table and add to it.
- Pick 8 moments from this [Timeline of Nuclear Physics](https://tinyurl.com/y7t9bxu7) to recreate your own timeline: tinyurl.com/y7t9bxu7
Write a 3-5 sentence summary of the significance of the events you selected.

AP Resources:

- Continue with the following:
 - 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.
- Continue, as applicable, with the review at:
<https://apstudents.collegeboard.org/coronavirus-updates>

Resources

- Nuclear reactions [tutorial](https://tinyurl.com/ydbexx2L): tinyurl.com/ydbexx2L
- 10 things to know about nuclear physics [tutorial](https://tinyurl.com/y863z9sl): tinyurl.com/y863z9sl

IPC - WEEK 8

Objectives

- Students will recognize that chemical changes can occur when substances react to form different substances and that these interactions are largely determined by the valence electrons.
- Students will classify energy changes that accompany chemical reactions such as those occurring in heat packs, cold packs, and glow sticks as exothermic or endothermic reactions.

Note: Beginning the week of April 14, and in alignment with our Adjusted Grading Guidelines, teachers in grades 6-12 may assign student work from the Digital Backpack eLearning guide, or from the teacher's itsLearning course, for a grade.

For Parents

- Please be sure your student has internet access and a technology device.
- Please print, if able: this [choice board](#) and this comic [template](#) (if selected as a choice activity)

For Students

- Review the different chemical reaction types with this [presentation](#)
<http://tinyurl.com/sguLLhp>
- Watch this video on [endothermic reactions](#) (youtu.be/GfPJsHM6dsQ) and this video on [exothermic reactions](#) (youtu.be/RSrepYVCwD0).
- If needed, read this [short piece](#) on the Law of Conservation of Matter:
tinyurl.com/ydexnb3t
- Choose three options from the Chemical Bonds [choice board](#) to complete:
tinyurl.com/yad8r5q4

Resources

- [Tutorial on Types of Chemical Reactions](#): youtu.be/aMU1RaRuISo
- [Tutorial on Endothermic and Exothermic Reactions](#): youtu.be/0cUK4jcAEaU
- [Tutorial on Law of Conservation of Matter](#): youtu.be/VvbX8PitSpg