SPRING BRANCH ISD

DIGITAL BACKPACK

SCIENCE

Science eLearning Guide – Week 4

Biology: Plant Systems Part 2

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

Chemistry: Thermochemistry Part 2

- Students will perform calculations involving heat, mass, temperature change, and specific heat.

Physics: Wave Motion Part 2

- Students will investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler Effect.
- Students will describe the characteristics and behaviors of longitudinal waves, including sound waves.

IPC: Solutions Part 1

- Students will investigate the properties of water solutions and factors affecting solid solubility, including the nature of solute, temperature, and concentration.

Biology - WEEK 4

Objectives

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

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 **reading**; this **investigation guide**; and this plant responses **practice**

For Students: Flowers and Tropisms

- Watch this **video**: **https://youtu.be/0h60_yuEhpY**
  What is the name of the symbiotic relationship between the flower and bee?
- Read about reproduction in **flowering plants**: **tinyurl.com/HMH-flower-repro**
- **Check your understanding** of flowering plant reproduction: **tinyurl.com/flower-repro-concept-check**
- Investigate plant interactions in this **virtual lab**: **tinyurl.com/plant-interactions-VL**
  Use this **investigation guide** to record your observations: **tinyurl.com/plant-VL-guide**
- Watch this **video** for more in-depth information about plant responses: **https://youtu.be/CuiJOYuXjDc**
- Explore plant interactions **here**: **tinyurl.com/yafon6xL**
- Check your understanding **here**: **tinyurl.com/plant-interactions-practice**

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

- Flowering **plant reproduction** (detailed): **https://youtu.be/0UEpq1W9C_E**
- Khan Academy **plant tropisms**: **https://youtu.be/2A_LKrLlhxE**

Chemistry - WEEK 4

Objectives

- Students will perform calculations involving heat, mass, temperature change, and specific heat.

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 **reading**, this **support page**, these **specific heat problems**, and these **heat curve calculations**.

For Students

- Watch this **video**—paying attention to the amounts over time—and think about why differences exist. (**https://youtu.be/xZHv1Ye0JIk** - *capital "i" between J & K*)
- Watch this animation on endothermic and exothermic reactions: **tinyurl.com/endo-exo**
- Read this **information on energy transfer** and try to calculate the specific heat problems at the end of the section: **tinyurl.com/hmh-thermo**
- Watch this tutorial on how to calculate a **specific heat** problem: **tinyurl.com/SH-ani**
- Use this **support** (**tinyurl.com/to4mq7e**) to help you solve these **specific heat questions**. After solving, check your work by revealing the answer: **tinyurl.com/SHC-probs**
- Get **additional practice** here: **tinyurl.com/SH-practice**
- Watch this video on **specific heat**: **https://youtu.be/yhNHJ7WdT8A**
- Try these **heat curve calculations**: **tinyurl.com/heat-curve-calc**

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

- **More in-depth tutorial on heat capacity & specific heat.**

Physics - WEEK 4

Objectives

- Students will investigate behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler Effect.
- Students will describe the characteristics and behaviors of longitudinal waves, including sound waves.

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.
- If able, please print: wave interaction **concept check**; PhET **sound simulation guide**; this **intro to sound practice problems**

For Students

- Review this information on **wave interactions**: **tinyurl.com/wave-interact**
- Try this wave interaction **concept check**: **tinyurl.com/wave-interact-practice**
- Use this **simulation** to explore sound waves: **tinyurl.com/PhET-sound**
  Use this **guide** to help you: **tinyurl.com/PhET-sound-guide**
- Watch this **video** on sound: **https://youtu.be/qV4IR9EWGIY**
- Read **these pages** on sound: **tinyurl.com/HMH-sound-waves**
- Try these Intro to Sound **practice problems**: **tinyurl.com/sound-practice1**

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

- **HMH Physics pages** on wave interactions: **tinyurl.com/HMS-wave-interact**
- Bozeman Science - **sound**: **https://youtu.be/OFU2jwl8Uwg**

IPC - WEEK 4

Objectives

- Students will investigate the properties of water solutions and factors affecting solid solubility, including the nature of solute, temperature, and concentration.

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: **note guide part 1** and **Growing Crystals**

For Students

- Watch this **video**: **tinyurl.com/hwqj79d** and answer the following question on paper:
- Why do you think the liquid behaved the way it did in the video? (This is to activate your thinking - not an expectation for you to necessarily know at this point! ☺)
- Review this **presentation**: **tinyurl.com/wgs4gn7** and take notes with this **guide**: **tinyurl.com/uehf5ev**
- Read this short **article** on colloids and alloys. Answer the questions at the bottom of the webpage on a piece of paper: **tinyurl.com/wvjt2wd**
- Read this short **reading** on mixtures and solutions: **tinyurl.com/y2kby22v** Answer questions about it **here**: **tinyurl.com/s7jbans**
- Try this at-home project **Growing Crystals**: **tinyurl.com/crystal-grow**

Resources

- **Mixture types tutorial** Khan Academy: **https://youtu.be/3ROWXs3jtQU**
- **Soluble vs insoluble** and solutions tutorial**: https://youtu.be/KOrq5i0rXUA**