SONLIGHT

# Science G



INSTRUCTOR'S GUIDE

SONLIGHT

G

Ages 11–13
Grades 6–8

# Science (5-Day)

Geology, Physics, and Origins

By The Sonlight Team



*"The heavens declare the glory of God; the skies proclaim the work of his hands."*

Psalm 19:1 (NIV)

Sonlight Curriculum® Science G "Geology, Physics, and Origins" (5-Day) Instructor's Guide and Notes, Twenty-Seventh Edition



"Do to others what you would have them do to you" (Matthew 7:12).

"The worker is worth his keep" (Matthew 10:10).

Published by

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Printed in the United States of America.

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## Level G: Science

*Days 1–5:* **Date: _____ to _____**

| Week Overview | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |

# Week 1

| Date: | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 |
|---|---|---|---|---|---|
| ***What's Science All About?*** | pp. 94-101 | pp. 102-105 | pp. 106-107 | | pp. 108-109 |
| **Activity Sheet Questions** | #1–3 | #4–6 | #7 | | #8–11 |
| ***Chemically Active*** | See the list below for supplies you will need on Thursday [N] | | | pp. 3–6, Chap. 1, pp. 7–11 [N] | |
| **Do Together** | | | | | Hot or Cold? |
| **Supplies** | **We provide: GSK**—soap flake .<br>**You provide:** 1 small red cabbage, grater, stainless steel or enamel saucepan, water, strainer, mixing bowl, measuring cup, large clean mayonnaise jar, teaspoon, white vinegar, cream of tartar, baking soda, chlorine bleach. [N] | | | | |
| **Shopping/Planning List** | **For next week:** No items needed next week. | | | | |
| ***Additional Subjects:*** | | | | | |
| | | | | | |
| | | | | | |





## *What's Science All About?*

Day 1 — pp. 94–101

The little sidebar on the bottom of page 99 has some interesting wording: "What about all those substances on alien planets?" Instead of the words "alien planets," the authors could have simply said, "other planets." The word "alien" can mean all kinds of things, but is most commonly associated with speculation about alien life (i.e. little green men or space aliens). [pp. 98–99]

## Activity Sheet Questions

Day 1 — #1–3

***Activity Sheet Questions***

Activity Sheets are included after the notes and are assigned on each schedule page. Each Activity Sheet has a corresponding Answer Key page following these schedule pages.

You do not have to do every question on the Activity Sheets. Feel free to adjust and/or omit activities to meet the needs of your children. We cover the same concepts repeatedly throughout the year (and years to come!) to enable students to learn "naturally" through repetition and practice over time.

Any question marked **Challenge:** will be just that—a challenge for your children. While we believe the material covered in the challenge questions is worthwhile for your children to know, it may not be specifically explained

[N] Parental Notes

## Science G: Week 1 Activity Sheet

***What's Science All About?***

1. Summarize what chemists study. (p. 98) *(They study substances—what they are, what they can do, what's inside them and how they can change.)*

2. What was the biggest problem with early matches? (p. 100) *(They caught fire too easily.)*

3. How is Teflon® unique as a substance? (p. 101) *(It doesn't become sticky when it gets hot.)*

4. The smallest particle that can have the properties of an element is called what? (p. 104) *(an atom)*
   Atoms that stick together in groups of two or more are called *(molecules)*.

5. Oxygen gas is an element because… (pp. 104–105) *(it is a substance made from only one type of atom)*

6. Do reactions always happen when you mix substances together? Explain. (p. 105) *(No, substances can also mix without reacting or bonding together, in which case they are called a mixture rather than a chemical compound.)*

7. **Challenge!** Draw an "X" in the appropriate column to classify each substance as a mixture, element, or a compound. Feel free to use the Periodic Table of Elements on pp. 124–125 if you get stuck. (pp. 106–107)

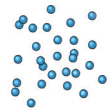
| | Mixture | Compound | Element |
|---|---|---|---|
| **hydrogen** | | | X |
| **water** | | X | |
| **table salt (sodium chloride)** | | X | |
| **granola** | X | | |
| **nitrogen** | | | X |
| **hydrogen peroxide** | | X | |





Science G: Week 1 Activity Sheet

8. Compare the molecules in the pictures below, then label each as either **solid**, **liquid** or **gas**. (p. 108)



*(gas)*

*(solid)*

*(liquid)*

9. What is the difference between the three states of matter? (p. 108)
   *(how much particles in the substance are moving around and how tightly packed together they are)*

10. How does temperature affect the three states of matter? (p. 108) *(Temperature helps determine how much energy molecules have. The more energy molecules have, the less tightly they pack together, so molecules in a liquid have more energy (and are warmer) than those in a solid, and the same comparison is true for molecules in a gas compared to a liquid.)*

11. Solve the puzzle using the terms in the box. (pp. 108–109)

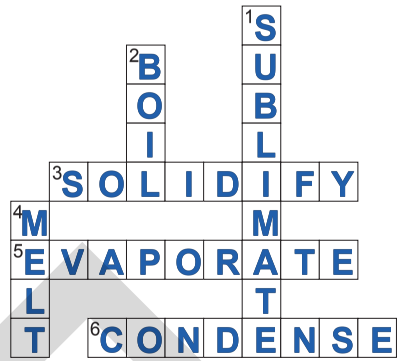
| | | |
|---|---|---|
| condense | boil | solidify |
| evaporate | melt | sublimate |

**Across**

3) to change state from a liquid to a solid
5) to change state from a liquid to a gas
6) to change state from a gas to a liquid

**Down**

1) to change state directly from a gas to a solid, or from a solid to a gas
2) the agitated state of a liquid when it is at the temperature where it changes from a liquid to a gas
4) to change state from a solid to a liquid



### *What's Science All About?*

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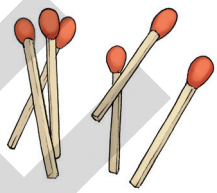

3. How is Teflon® unique as a substance? (p. 101) _____

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4. The smallest particle that can have the properties of an element is called what? (p. 104) _____

Atoms that stick together in groups of two or more are called _____.

5. Oxygen gas is an element because… (pp. 104–105) _____

_____

6. Do reactions always happen when you mix substances together? Explain. (p. 105) _____

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7. **Challenge!** Draw an "X" in the appropriate column to classify each substance as a mixture, element, or a compound. Feel free to use the Periodic Table of Elements on pp. 124–125 if you get stuck. (pp. 106–107)

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| **granola** | | | |
| **nitrogen** | | | |
| **hydrogen peroxide** | | | |

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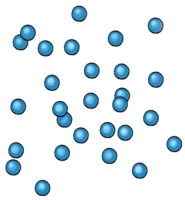

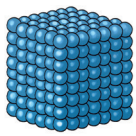

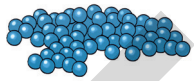

_____ _____ _____

9. What is the difference between the three states of matter? (p. 108)

_____

_____

10. How does temperature affect the three states of matter? (p. 108) _____

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11. Solve the puzzle using the terms in the box. (pp. 108–109)

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