Getting Started with Middle School Science
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Welcome to Calvert

We are glad you have selected our curriculum. Please take the time to read the introductory pages that follow. The information provided will help to make this course a pleasant and worthwhile experience for you and your student.

Anything that has been done once is more easily done a second time. After it has been done a dozen times, it is still easier. After it has been done a hundred times, it is called natural, and is done without conscious thought or attention, slipped into without thinking—it has become a HABIT.

Excerpt from Hillyer’s Child Training
GENERAL INFORMATION

The Lesson Manual for this module contains general instructions about how to use the manual, Lessons 1–9, and an Appendix. Only Science lessons for *Getting Started with Middle School Science* are included in this Lesson Manual. Digital lessons, Virtual Labs, hands-on labs, and assessments are located online and accessed through your online platform. The Middle School Science modules were developed to give your student an interactive science experience with hands-on experiments and an interactive text.

THE PLAN OF THE MODULE

*Getting Started with Middle School Science* is planned for nine days of instruction. There are nine lessons and nine Checkpoints with each lesson. Getting Started with Middle School Science is the first module, and its purpose is to introduce the characteristics of science and the scientific method.
ORDER OF MODULES

The 12 middle school Science modules have been organized to give your student a comprehensive understanding of science that builds on prior knowledge within grade levels. Grade 6 focuses on Earth Science, Grade 7 focuses on Life Science, and Grade 8 focuses on Physical Science. Students should follow the modules in order unless the student is enrolled in a school that has organized the modules differently. If this is the case, the student's teacher will inform the student and Learning Guide of the modular organization.

Below is the organization of modules for middle school Science. Notice that the Days of Instruction varies in each module. The Days of Instruction are the total amount of days in the module that consists of lessons and assessments where some assessments, such as Quizzes, are on their own day of instruction. Lessons and certain types of assessments such as pretests, posttests, Quizzes, and unit tests are taught on their own day and can be combined with lesson days to shorten the days of instruction.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Order of Module</th>
<th>Science Topic</th>
<th>Days of Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Getting Started with Middle School Science, Module K</td>
<td>Science and Technology</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>Introduction to Science and Technology, Module K</td>
<td>Science and Technology</td>
<td>36</td>
</tr>
<tr>
<td>6</td>
<td>Space Science, Module G</td>
<td>Earth Science</td>
<td>36</td>
</tr>
<tr>
<td>6</td>
<td>The Dynamic Earth, Module E</td>
<td>Earth Science</td>
<td>37</td>
</tr>
<tr>
<td>6</td>
<td>Earth’s Waters and Atmosphere, Module F</td>
<td>Earth Science</td>
<td>38</td>
</tr>
<tr>
<td>7</td>
<td>Cells and Heredity, Module A</td>
<td>Life Science</td>
<td>42</td>
</tr>
<tr>
<td>7</td>
<td>The Diversity of Living Things, Module B</td>
<td>Life Science</td>
<td>36</td>
</tr>
<tr>
<td>7</td>
<td>The Human Body, Module C</td>
<td>Life Science</td>
<td>36</td>
</tr>
<tr>
<td>7</td>
<td>Ecology and the Environment, Module D</td>
<td>Life Science</td>
<td>45</td>
</tr>
<tr>
<td>8</td>
<td>Matter and Energy, Module H</td>
<td>Physical Science</td>
<td>59</td>
</tr>
<tr>
<td>8</td>
<td>Motion, Forces, and Energy, Module I</td>
<td>Physical Science</td>
<td>40</td>
</tr>
<tr>
<td>8</td>
<td>Sound and Light, Module J</td>
<td>Physical Science</td>
<td>36</td>
</tr>
</tbody>
</table>
MODULE OVERVIEW

The lessons in *Getting Started with Middle School Science* will help you to think like a scientist and to develop the skills scientists use to solve problems. You will learn about the characteristics of science, the scientific method, the differences between a theory and a law, and the work of real scientists.
Suggested Daily Schedule

The following is a suggested daily schedule. Although each subject should be studied in its designated order without omissions, it is important to adapt a schedule and pace to meet your student's individual needs.

For your convenience, the schedule has been provided on a removable page in the Appendix.

<table>
<thead>
<tr>
<th>Time</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 10:00</td>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10:00 – 11:15</td>
<td>Grammar/Composition/Spelling</td>
<td></td>
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<tr>
<td>11:15 – 11:35</td>
<td>Recess/Physical Activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:35 – 12:20</td>
<td>History and Geography</td>
<td>Science</td>
<td>History and Geography</td>
<td>Science</td>
<td>History and Geography</td>
</tr>
<tr>
<td>12:20 – 12:50</td>
<td>Lunch</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:50 – 1:50</td>
<td>Reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1:50 – 2:10</td>
<td>Recess/Physical Activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:10 – 2:55</td>
<td>Science</td>
<td>History and Geography</td>
<td>Art History</td>
<td>Study</td>
<td>Art</td>
</tr>
<tr>
<td>2:55 – 3:35</td>
<td>Study</td>
<td>Study</td>
<td>Science</td>
<td>Study</td>
<td>Science</td>
</tr>
</tbody>
</table>
Components of a Lesson

A description of some of the lesson components is provided below to help you and your student better understand the daily lessons.

Lesson 1
What Is Science?

Essential Question
What are the characteristics of science?

LEARN
In this lesson, you will learn the characteristics of science. Science is the study of natural events and conditions. An important feature of science is that evidence must be open to all. This evidence cannot be an opinion or guess. It must be observable by the senses.

Vocabulary Terms
science empirical evidence

Begin by studying the photo on p. 4. As you read the caption, think about all the ways that chefs use science in their jobs. Write a short list of other jobs in which knowledge of science is helpful every day.

Next, complete the Engage Your Brain activity on p. 5. Which statements are true? Write down a scientific statement and a nonscientific statement about the lava lamp in your Science Notebook. Then, complete the Active Reading activity. How does pseudoscience differ from science? You will learn more about the difference between science and pseudoscience in a later lesson.

Read about the characteristics of science on pp. 6–7. Complete the Active Reading activity by underlining three areas of science. Then read about the importance of community consensus and empirical evidence in the practice of science.

Answer the Visualize It! questions on p. 6.

Journal
Can you think of situations where a scientist would not be able to observe something they want to test? Write your answers in your Science Notebook. Discuss with your Learning Guide how scientists might investigate things they cannot observe.

Objectives are statements that describe what your student will be learning. The objective will be your goal for the lesson.

Objective
• To explain how a scientific explanation is evaluated to examine what elements are involved in scientific work

Books and Materials
• ScienceFusion: Introduction to Science and Technology
• Science Notebook
• Lab Data Sheet

Assignments
• Read pp. 4–7, ScienceFusion: Introduction to Science and Technology
• Complete the Engage Your Brain, Active Reading, and Visualize It! activities.
• Complete the Quick Lab: Investigating the Unseen
• Complete the Checkpoint

Standards
• ETS1-1

The Essential Question is the same for a series of lessons on the same topic. It is the question that students should think about during each lesson and will be able to answer at the end of a series of lessons.

The Assignments list highlights the day’s work at a glance. This list includes reading assignments, experiments, activities, and exercises. The assignments listed are always described in greater detail in the text of each lesson.

Standards show how each lesson is aligned with national standards. All lessons are aligned with national Science standards, and some lessons are also aligned with national English Language Arts and Math standards.

LEARN provides you with the day’s activities, which may include, but are not limited to, reading, conducting question-and-answer sessions, and completing activities to reinforce learning.

Journals are opportunities for students to reflect on their learning or write notes which are kept as part of their Science Notebook.
More to Explore

When you think of scientists, what traits do you think of? What traits would you use to describe painters or writers? Think about the characteristics that scientists use to design experiments or to think of an explanation for certain data. Is creativity involved? Explain your answers in your Science Notebook.

USE

When you observe an object, you use your senses to gain information. Good investigations use observations. Evidence that is gained by observing is empirical evidence. Other scientists can test results that are based on observations. This helps build consensus. Consensus is important in science. In the Quick Lab: Investigating the Unseen, you will use your other senses to observe objects that you cannot see.

As you do the lab, you will compare what you observe to the objects. Think about what you observe as you answer questions about the comparison. Write your answers and conclusions on the Lab Data sheet.

Teaching Notes

To adapt the Quick Lab: Investigating the Unseen for independent use, have the student explore all the objects in clay on his or her own. For Question 10, ask the student to answer the question only about the difference between using a paper clip and a toothpick.

SHOW

Wrap-up

In this lesson, you learned about the characteristics of science. You also read how scientists discover things. You read about the types of scientific knowledge. In the next lesson, you will read about scientific explanations. The next lesson also explains pseudoscience.

Complete the Checkpoint
ONLINE PLATFORM

When you enrolled your student in this course, you received a username and password for your student to use. Your student will need the username and password to log in to your online platform. Once logged in, your student will have access to a wealth of instructional resources. These include the following:

- Online content and activities
- Checkpoints, which are short questions designed to assess student understanding
- e-Textbook
- Virtual Labs, which are online science experiments
- Digital Lessons, which are interactive online versions of the text
- Quick Labs, S.T.E.M. Labs, and Field Labs for hands-on experiments
- Learning Strategies Study Skills Guide (Grades 6–8)
- Online Practice tests, including pre- and postmodular assessments
- Answer Keys for Daily Work

ICONS

Icons are included throughout the lesson manual to help you quickly identify resources that support instruction. Icons are strategically placed in line with lessons. Generally, you should plan to engage in the activity at the place in the lesson where the icon appears. For example, if a video icon is placed in the lesson, you should plan to watch the video during that time.

The following icon key will help you to plan and navigate your daily lessons:

- Journal—Students will be prompted to complete a writing activity.
- More to Explore—This is an activity designed to extend learning.
- Teaching Notes—Teaching Notes provide assistance to the Learning Guide.
- Assessment—Students will be prompted to complete an online assessment.

BRAINPOP

Calvert Education is pleased to offer BrainPOP, an engaging web-based interactive program that supports the core curriculum. BrainPOP activities include animated video tutorials, interactive activities, and assessments that provide a rich, multisensory experience designed to improve learning. These research-based activities were developed in accordance with national and state academic standards.

These engaging activities are accessed through the online course. When a BrainPOP activity is appropriate for a lesson, the link is located with the online lesson for that day. Click on the link, and you will be directed to the instructional activities.
LABS AND DIGITAL LESSONS

Students will be actively engaged in each science lesson through an activity, lab, Virtual Lab, or digital lesson. Students will actively participate in labs such as Quick Labs, S.T.E.M. Labs, and Field Labs. Students will also have the opportunity to select different levels of inquiry in certain labs. Lab worksheets and digital lessons are only available online through the online platform. Materials for the labs that are not household items will be included with the physical course materials. Activities such as Think Outside the Book or Take It Home are also hands-on activities that are available through the text for each module.

E-TEXTS

Middle School Science lessons include hyperlinks to the e-text when the student is directed to read from or to complete an activity within the text. Each module comes with its own e-text.

ASSESSMENTS

Assessments help inform students and Learning Guides about the student’s understanding of the lesson. It is important to assess understanding frequently so that students and Learning Guides can measure progress. There is an assessment every day that consists of checkpoints, review checkpoints, Quizzes, or unit tests. Each module begins with a modular pretest and ends with a modular posttest for students to assess how much they have learned. All assessments are online and autograded to evaluate your student’s understanding and to provide immediate feedback. The assessments are located in your student’s online course in the online platform with the lesson for that day.

After your student has completed the assessment, you can find the score in the online platform. Review any concepts that your student marked incorrectly.
Responsibilities of the Student

The lessons in this manual are written to you, the student, but that does not mean you are expected to work completely on your own. Keep in mind that your Learning Guide is there to guide and help you.

You and your Learning Guide will work as partners. Together you will decide which assignments you will work on independently and which you will do jointly. During the course, there will be times when you will be directed to read a selection aloud for your Learning Guide, share information you have learned, or take part in a discussion.

When working on your own, ask for your Learning Guide’s assistance if you have any questions or if directions do not seem clear. You should also check with your Learning Guide before linking to any of the websites listed in the lessons or activities. In addition, refer to Learning Strategies frequently for further explanation, guidance, and support as you begin any reading or writing assignment. The Learning Strategies Guide can be found in Course Resources. Another excellent reference can be found in the Appendix of this lesson manual in a section titled Student Study Tips.

MANAGING THE PAPERWORK

You and your Learning Guide should choose the best method for keeping track of your papers—either in a folder or a loose-leaf binder. Make filing your papers a daily activity so that papers don’t accumulate and make the task become overwhelming. Use notebooks for completing your exercises and for keeping lists of vocabulary words and other information that you and your Learning Guide feel would be helpful.

RULES FOR WRITTEN WORK

Keep your written work orderly and neat by following these guidelines:

1. Number each sheet of work in the upper right-hand corner to correspond with the lesson number. Use numerals only, not the abbreviation No.
2. Keep completed sheets in numerical order in a folder or binder.
3. Use both sides of the paper. (This applies to handwritten work only, not typed.)
4. Write your name at the end of the paper and put the date underneath.

HANDWRITTEN SHORT ANSWERS, COMPOSITIONS, AND REPORTS

Follow these guidelines when writing a composition by hand:

1. When writing a composition, place the title in the center of the top line. (The word Composition should never be used as a title.)
2. Leave a blank line between the title and the beginning of your composition.
3. Start the body of your composition on the third line, indenting 3/4 of an inch from the margin.
4. Start the next line at the margin.
5. Aim to reach the end of each ruled line approximately at the same time as the end of a word or syllable.
6. Leave 1/4 of an inch of space between sentences.
**TYPED COMPOSITIONS AND REPORTS**

Follow these guidelines when typing a composition:

1. To make your paper easy to read, use a font such as Times New Roman or Arial in 12 point.
2. Set the margins to 1 inch all the way around.
3. Set the line spacing format to double-space. This gives you room to make changes and the Learning Guide room to write comments.
4. Set the page numbering to appear in the upper right-hand corner of each page.
5. Center the title on the first line of the page. (The word Composition should never be used as a title.)
6. Check to make sure the alignment is set back to the left margin.
7. Leave a blank line between the title and the body of the composition.
8. Tab over 1/2 of an inch at the beginning of each paragraph.
9. Do not put an extra line between paragraphs.
10. Leave only one space after a colon and at the end of a sentence.
11. At the end of each composition, leave one blank line and type your name. Then type the date on the next line.
12. After you've printed your composition, write the lesson number above the page number in the upper right-hand corner of each page. (Write 120, not Lesson 120 or No. 120.)

**VISUAL DISPLAYS AND PRESENTATIONS**

Some lessons require the student to conduct research that can be used in a visual display or multimedia or oral presentation. Students should follow the directions on the lesson for requirements and procedures for completing these types of activities.
Course Materials

IN THE CALVERT BOX
Getting Started with Calvert Middle School Science Lesson Manual, Lessons 1–27
Introduction to Science and Technology, text

ONLINE RESOURCES

ONLINE PLATFORM
- e-Textbook
- Dashboard with performance, progress, and attendance
- Online Science module lessons
- Online digital lessons, labs, and hands-on activities
- Assessments
- BrainPOP

Learning Strategies
- Web Guide
General Instructions for the Science Course

SCIENCE NOTEBOOK

Create a notebook or binder with loose-leaf paper for completing journals, taking notes, completing lab experiments, answering questions, and completing Active Reading and Visualize It! activities. This will be called your Science Notebook. There are questions presented in the lesson manual as well as in the textbook that you may answer orally. The Reading Checkpoints are a good example of these.

Remember to incorporate diagrams, illustrations, and charts from the textbooks into your Science Notebook to help you learn the information. In your notes, include the lesson number and date. Being organized and taking notes are essential to becoming a successful student. Reviewing on a daily or weekly basis will be easier when you can refer to your notes. Learning Strategies (online) provides prototypes for different styles of note taking. It gives suggestions on how to effectively review your notes and the readings and gives directions for making and using flash cards.

SCIENCE MATERIALS LIST

You will find a Science Materials list by lesson in the appendix of each Lesson Manual. Required materials are also listed in each lesson. It is important to check the list in the appendix of each Lesson Manual for materials needed for optional activities.
WHAT IF I HAVE A QUESTION ABOUT THE CURRICULUM? WHOM CAN I CONTACT?

Calvert Education is dedicated to its teachers and students’ continued success. Our experienced Education Counselors are ready to answer questions, offer support and encouragement, and provide suggestions for students using our courses. The Counselors are available toll-free at 1-888-487-4652 between 9:00 A.M. and 5:00 P.M. EST, Monday through Friday. You can also contact them by e-mail anytime at edcounselors@calvertservices.org.

Some restrictions may apply if you are participating in a school program. Contact your school for more information.

HOW DO I CONTACT CALVERT BY MAIL?

Please address all letters to:

       Calvert Education Services
       10713 Gilroy Road
       Suite B
       Hunt Valley, MD 21031

WHAT SHOULD I DO IF I FIND A MISTAKE IN THE MANUAL?

Despite all our work to prevent mistakes, an occasional error may be found in our manuals. You may contact an Education Counselor (edcounselors@calvertservices.org), or contact the Curriculum Department through your online platform.