How many times have you asked your students to “take notes” on a topic, only to find that they have generated a mere list of bullets with little attention paid to the relationships between pieces of information? Outlining informational text is an invaluable skill that must be taught, and one should never assume that students have magically acquired the skill before entering a classroom. Outlining informational text allows students to analyze and evaluate information, and then creatively organize it in a hierarchically structured framework that serves as a launch pad (schema) for more in-depth classroom content learning (Bransford, Brown, and Cocking 2001; Donovan and Bransford 2005; Goodwin and Hein 2015). More importantly, the skill of outlining forces students to personalize their learning through the creation of sophisticated products, thus increasing the likelihood of content and skill transfer.

Most students have seen an outline somewhere in their educational experience. Perhaps they have even made one. The skill of outlining mandates higher-order analysis in reading, as the student organizes that hierarchy into a predictably organized structure. The skill of outlining is relevant to all students of all subjects at any age—it enhances student understanding and engagement with content text. Once practiced, a baseline skill is then established and can be used to efficiently and meaningfully absorb text content for future units of study, with the outlined information serving as schema to which future learning is attached.
The instructional sequence

The instructional sequence outlined below is designed to bring students through the process of creating three introductory outlines, each more sophisticated than the previous. Students are first presented with a sample outline, taken out of context. We use a student-generated outline of Chapter 12 of the *Holt Science & Technology Physical Science* text (Figure 1; 2001). Students are asked to study the sample outline and be prepared to answer the following question: “What appear to be the rules of outlining?” Responses typically include the notions of structure, indenting, letters and numbers, and grammatically incorrect sentences. The teacher then emphasizes the following points:

- more specific information is tabbed farther right than general information
- statements are in broken English (“caveman talk”)
- chapter headings and subheadings are apparent
- a predictable structure of organization is obvious
- statements and headings of equal importance are vertically aligned

The sample outline is then removed and students are asked to outline a specific chapter section, preferably one that is relatively short, structured, and presents significant general science background knowledge (such as the metric system). Students outline a four-page section for 25 minutes on loose-leaf paper or on computers. Students are instructed to finish their outline at the exact moment the 25-minute timer strikes 0:00. In the words of Grant Wiggins, co-founder of the Understanding by Design (UbD) instructional model, students “muck around” with the informational text and outlining structure (2010). They develop questions, grapple with confusions about the outlining process and work to resolve them. We intentionally offer no (or limited) assistance. When the 25 minutes has expired, an official grading rubric is distributed (Figure 2), and students are led through a self-evaluation of their work. We specify that their work will be scored, but not graded, as the rubric was not made public before the task began. Although these scores are typically quite low, students very quickly become privy to the requirements of the outlining rubric during the self-evaluation. This serves them in the next task.

The top rows of the outline rubric indicate the pages to outline and which ancillary text-box sections can be included and skipped. The outlining rubric assesses three aspects of the outlining skill:

- How Much Information
- Structure and Setup
- Rules

“How Much Information” is worth the majority of the points, and it assesses the student’s ability to sift through the vast amount of information and generate a perfect balance between too much and too little information. We are careful not to state a specific page requirement, as
students’ outlining styles are so different, but a minimum requirement of no less than two pages would be appropriate for this particular introductory task. It is vital that the teacher communicates that deductions can occur if the student includes too much information, as the task of outlining is about synthesizing text, not copying it. It is recommended that each teacher privately outline the section in advance. This can then be used as the standard against which the perfect amount of information is judged.

“Structure and Setup” assesses the student’s creation of a reasonably predictable framework for the informational text. The structure must include a series of indenting levels, not unlike Russian dolls. Items of equal importance are vertically aligned, and more specific information is tabbed farther than the information in the line above; general information is tabbed left 2.5 cm (1 in.). We do not mandate how characters should be used (e.g., A, a, 1, i, I) but do insist that the structure is reasonable and predictable. Some students therefore begin with a “1,” while others choose to start with “A.” We find it is best to allow students to devise their own methods of systematic structure. This freedom conveys the personal nature of outlining, and makes the eventual transition to computer-based outlines much easier, as computer outlining settings vary. It also ensures that students focus on the important task of outlining, rather than what arbitrary rules should be followed in structuring the content.

“Rules” is a category that allows the student to “tag” or “flag” important aspects of the text, such as vocabulary, examples, headings, and specific ancillary sections from the margins of the text. Handwritten outlines should indicate vocabulary with a highlighter, examples written in cursive or with “Ex:;” main heading titles in CAPS, and subheadings underlined—our text has major “Blue Section” headings, within which are smaller “Green Section” sub-headings. Students are asked to “box” (put a penciled box around) the information gleaned from the ancillary margin sections to make it easier to spot. Most importantly, students often struggle in recognizing that examples are more specific than general statements made above them in the outline (prior in the text). By asking students to

| FIGURE 2: Outlining rubric |

| Chapter 1.4, p. 24-27 |
| Measurement & Safety in Physical Science |
| Include: Information from all Figures | p. 26 Math Break |
| Skip: p. 27 Activity | p. 27 Review Questions |

<table>
<thead>
<tr>
<th>Needs Improvement</th>
<th>Proficient</th>
<th>Advanced Proficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>How much information</td>
<td><em>too little information/incomplete</em></td>
<td><em>Add more information</em></td>
</tr>
<tr>
<td><em>Examples are not included</em></td>
<td><em>too many—avoid copying sentences from the text—summarize</em></td>
<td><em>Will done</em></td>
</tr>
<tr>
<td><em>The statements you’ve indicated as examples are not examples, they are only facts</em></td>
<td><em>Too much information included</em></td>
<td></td>
</tr>
<tr>
<td>Structure and setup</td>
<td><em>Inconsistent or incorrect numbering/lettering system</em></td>
<td><em>Structure does not yet represent in-depth computer-generated structure—a list of bullets</em></td>
</tr>
<tr>
<td><em>Structure does not yet represent in-depth computer-generated structure—a list of bullets</em></td>
<td><em>Too many—avoid copying sentences from the text—summarize</em></td>
<td><em>Blue Sections indented more than section title</em></td>
</tr>
<tr>
<td><em>Tabs should be no more than one inch</em></td>
<td><em>Too many—avoid copying sentences from the text—summarize</em></td>
<td><em>Greens Sections are indented more than Blue Sections</em></td>
</tr>
<tr>
<td><em>Your computer should be outlining FOR YOU</em></td>
<td>Sample: <a href="http://geo.alltech.com">http://geo.alltech.com</a></td>
<td><em>Examples are indented more than topic above them.</em></td>
</tr>
<tr>
<td>Sample: <a href="http://geo.alltech.com">http://geo.alltech.com</a></td>
<td>Sample: <a href="http://geo.alltech.com">http://geo.alltech.com</a></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rules</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.<em>Vocabulary terms (bold/highlight)</em></td>
<td>No rules met</td>
<td>1-4 rules met</td>
<td>All five rules met</td>
</tr>
<tr>
<td>2.<em>Examples (italics/cursive/“Ex:“)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.<em>Green Section Titles (underline)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.<em>BLUE SECTION Titles (all Caps)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.<em>p. 26 Math Break [Box it]</em></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Name: | Score: | 10 |

Late deduction: _____ Student did not self-evaluate: _____ Incomplete assignment: _____

Student notes for teacher:

All outlines are to be entirely your own work; you may not collaborate in any way with other students. In other words, violation of this rule will result in an automatic zero.
tag examples, we can efficiently evaluate their ability to synthesize information, and they can rank the specificity of information, a skill at which middle school students need considerable practice.

Students then tally their scores when the self-evaluation is complete. They generate a final score and submit their outline with the rubric stapled to the cover. The scores are then privately tallied by the teacher to be used as pre-assessment data, and can easily be used as aspects of teacher evaluation and longitudinal comparisons of student skills. We then grade their work and return the outline to them prior to the launching of the next graded outlining task.

We then assign the next section of the text, which emphasizes mass and volume and the general characteristics of matter. Students are given the rubric and the task is assigned as homework. Students are given an Outlining Help Sheet (Figure 3) and links to YouTube instructional videos made with the Google Chrome extension called Screencastify (see Resources). Although the rubrics are similar, students are taught to pay specific attention to the sections to include versus skip, and page numbers to be outlined; it is recommended that each outline have its own unique rubric, as there are subtle variations from one chapter section to another, and this facilitates expedient grading.

The grading rubric also includes small hyperlinks to samples in the Structure and Setup category. Students submit this second outline for a small grade, and further feedback is given by the teacher via this new rubric and an exemplary sample is revealed (Figure 4). Students may also be shown a sample of an incorrect outline. The sample can be projected and students can share what they think is wrong with it (Figure 5).

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**FIGURE 3: The outlining help sheet**

**Learning Objectives**—www.corestandards.org/ELA-Literacy/RST/6-8

- Determine the central ideas in a text
- Analyze the structure of a text
- Represent the central ideas and structure in outline form

**Resources**

- Video 1: How to Outline—https://goo.gl/sAOhRb
- Video 2: Getting Started on Your Chapter 2.1 Outline—www.youtube.com/watch?v=WNTgg6WirWM
- Video 3: Getting Started on Your Chapter 2.2 Outline—http://youtu.be/RmyaNJKHbyw
- Video 4: Outlining Tips and Shortcut Keys—http://youtu.be/cV5T6weu3So

**Other resources**


**Rubric**

- General rubric—https://goo.gl/24lxlR2
- Rubric 2.1—https://goo.gl/4WefHq
- Rubric Chapter 2.2—https://goo.gl/aMik7a

**Templates**

- Chapter 2.1 starter template and sample—http://goo.gl/QfsWiD
- Chapter 2.2 starter template—http://bit.ly/2MYYFu4

**Samples**

- Chapter 1.4—http://goo.gl/uHO40D
- Good and bad—http://bit.ly/2P7nvFi

**Computer help**

- Still stuck? Try “chatting” with other students on this document and ask

**Common shortcut keys:**

- [Tab] tabs in
- [Shift] [Tab] tabs you backward [very important feature]
- [Ctrl] [b] bold
- [Ctrl] [i] italics
- [Ctrl] [u] underline
- [Ctrl] [a] selects all
- [Ctrl] [+] superscript [ex: cm²]
- [Ctrl] [+] subscript [ex: H₂O]
Students are then asked to outline a final chapter section as an assessment. The section is on the topic of physical and chemical properties, topics soon to be addressed in the classroom in much greater depth. As an introductory task, students are once again asked to create a timed outline, this time of one particular chapter page. They are given four minutes. We ask them to outline a page of the text, which features content on physical properties. Most of the information on the first page of the text is barely relevant enough to be included in this outline and constitutes more critically important student practice in discerning what textual information is appropriate to omit; students have an initial tendency to include everything from the text in their first outlines. Video 3 shows a narrated model of how to handle that first page of irrelevant text and is designed to direct students along the right path in the assessment outline. Once students have watched Video 3, they set out to complete the outline without additional guidance, save from one another (see Resources). The video can be projected on a screen, or students may watch it privately on their devices or student computers.

To continue to practice outlining skills, students outline content from chapter sections prior to more in-depth units of study throughout the year. Students are also periodically asked to outline their responses to complex questions on summative assessments, thus reinforcing the skill and promoting further transfer.

**English language learners (ELLs) and students with special needs**

Outlining informational text can be a challenge to struggling readers, and one size never fits all. Some students require scaffolding in the form of tutorials, models, and other tools. One such tool is an outlining template (Figure 6). The template allows the student to see that the task is not as “long” as they have perceived. By supplying a template, students are exposed to visual cues. These cues are related to the

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**FIGURE 4:** Chapter 2.1 starter sample

1. What is matter?
   a. Everything is made of matter
      1. Everything = matter, even me
      2. Matter: anything with mass and volume
   b. Matter has volume
      1. All matter takes up space
      2. Volume: space taken up or occupied by object
         i. The Sun takes up space = 1,000,000,000x size of Earth
         ii. Fingernails
         iii. Statue of Liberty
         iv. Africa
         v. Cloud
      3. Things cannot share the same space at the same time
      4. Even the tiniest speck of dust takes up space!
         a. Ex: The Sun’s volume is 1 million x that of Earth
   5. Liquid volume
      1. Lake Erie = 483 trillion liters of H2O
      2. Soda can = 355mL
         a. Can read on can to determine volume
         b. Can pour into measuring cup to determine volume
   6. Measuring the volume of liquids
      1. Graduated cylinders measure liquid volume
         a. surface of liquid is not flat, but curved
            i. meniscus: curve seen at liquid's surface
               1. measure volume from bottom of meniscus
               2. meniscus too flat to see in wide container
         b. Liters (L) and milliliters (mL) are the most common units
            i. All liquid volumes can be expressed with these units
            c. Figure 2: volume ox can should match measurement
            d. Figure 3: low part of water in tube: meniscus
            e. Brain food: 0.99 mL = min drop
               i. 4,000 drops per soda can

**FIGURE 5:** Incorrect outline

1. Exploring Physical Science
   A. THAT’S SCIENCE
   B. being curious; observing; asking questions
   C. wondering about reflection in spoon
   D. Everyday Science
   E. Science = all around you!
      1. Putting on sunglasses
      2. Microwave popcorn
      3. Bike brakes
   F. Science = helps us gain understanding of world
   G. Branches of science
      1. Physical science
      H. Matter + Energy → Physical Science
      I. Physical Science: study of matter and energy
      J. Matter: stuff everything is made of
         1. Shoes
         2. Pencil
         3. Air
      K. Energy: All matter has it
         1. Rainbows in the sky
         2. Not rainbow itself though
         3. Thrown ball is given energy
requirements of the outline but point the student to where information can be located in the text. Direct instruction on sentence structure is highly important, as it helps the student to know where the information is and is not. We typically walk students through a series of paragraphs, helping them gauge what should be included versus omitted. We also help students break text sentences down into simplified, grammatically incorrect statements (“caveman talk”). For example, if the text said, “Physical changes are everywhere. Physical changes are changes of matter in which the chemical makeup remains the same,” we would teach the student to write the following in their outline: “Phys changes = everywhere = chemical makeup stays same.”

After using the support of the template for two (or so) outlines, the teacher may then remove it as an accommodation. The student then begins to tackle the organization of the information in the text on their own. Students may struggle to break sentences down into “caveman talk” if they are still learning sentence structure and grammar. Many students miss the important facts when attempting to reduce text to caveman talk. Reducing the expectations (if necessary) for breakdown of information should be considered based on the specific needs of the student as articulated through an Individual Education Plan or as communicated by an English language support professional. Finally, it may take some time for the student to understand the need for “tabbing,” and what it represents. Tabbing is when a student indents one level by pressing the tab key. This is done when information in the outline is clearly more specific than what was listed above it in the outline (earlier in the text). A visual model or analog helps them begin to understand why tabbing is required. A froyo (frozen yogurt) shop is one analogy that students can relate to, as shown by this fictitious dialogue between student and teacher:

<table>
<thead>
<tr>
<th>Teacher:</th>
<th>Making an outline is like going to a froyo shop. Do you know how?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student:</td>
<td>There are steps to making your froyo. There are different flavors, and maybe these are like different sections in the text.</td>
</tr>
<tr>
<td>Teacher:</td>
<td>Good! So, what would the cup represent for our outline?</td>
</tr>
<tr>
<td>Student:</td>
<td>Maybe the title of the chapter section.</td>
</tr>
<tr>
<td>Teacher:</td>
<td>Yes! And then what might the different flavors represent?</td>
</tr>
<tr>
<td>Student:</td>
<td>Those could be the blue sections in the section.</td>
</tr>
<tr>
<td>Teacher:</td>
<td>Okay ... so ... keep going ...</td>
</tr>
<tr>
<td>Student:</td>
<td>Well, there are toppings ... maybe those are like subsections, vocabulary, or maybe the examples and pictures.</td>
</tr>
<tr>
<td>Teacher:</td>
<td>Okay. Can you tell me why froyo shops are arranged by different flavors, and then by wet versus dry toppings?</td>
</tr>
<tr>
<td>Student:</td>
<td>Everything is organized. Toppings and flavors that go together are in a place that makes sense.</td>
</tr>
<tr>
<td>Teacher:</td>
<td>So, it’s predictable ... ?</td>
</tr>
<tr>
<td>Student:</td>
<td>Yes!</td>
</tr>
</tbody>
</table>

Another scaffolding accommodation is to reduce or remove “Rules” requirements (e.g., examples in italics, vocabulary in bold). Once students under-
stand that the requirements are just a means to break apart the text, they can understand the need for the requirements. The rules are a way to understand the structure of the text. Reducing the number of required rules benefits the student because it reduces the number of ancillary tasks that may distract from the main purpose of the outlining.

Students requiring small-group instruction and resource classroom support benefit from a variety of multisensory accommodation tools such as posters and other visual reminders. Small-group instruction in distraction-free environments can be as simple as the teacher outlining with students, pausing to address questions that arise. Further accommodations can be explored in resource support classrooms.

An Outlining Anchor Chart can be built by the teacher in advance, and is a visual model that shows basic outline structure (Figure 7). It can be posted for easy reference, and outline samples can be projected on a screen or whiteboard.

Typing an outline requires some preliminary instruction on how to outline on a Google or Word document. This preliminary instruction will benefit students throughout their educational careers, in all classes. Once skilled at using the outlining feature, students can then use highlight, bold, and italics features to “tag” aspects of the text as they progress through the outlining process. The teacher encourages use of Google shortcut keys such as “CTRL + .” to produce superscript for characters such as cm³, or “CTRL + ,” for chemistry subscripts (e.g., H₂O). Outlining, of course, can be done by hand with a standard highlighter as well.

Students with significant reading difficulties may need a multisensory approach to starting the task. A photocopy of the text section can be physically highlighted by the student, or even cut and pasted onto another sheet of paper to begin the process of breaking down the information in the text. Textbook companies also offer reading guides that could be used to support the learning of content if the teacher feels that the process of outlining is not yet attainable for the student.

ELL students face unique challenges when outlining informational text as well. Support depends on the level of English language learning. A baseline expectation should be that the student is able to outline the basic structure of the text (sections and sub-sections) and include section vocabulary. It would be up to the teacher to then determine what additional expectations would be reasonable (examples, etc.). For some students with extreme reading challenges, a teacher might omit the need for examples in the outline, as it would simply be too burdensome to the student.

Students who struggle with reading, writing, and the English language should be supported in the complex task of outlining. There are some who say, “Oh, my kids can’t do that.” They can, and it is

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**FIGURE 7: Outlining anchor chart**

I. Chapter Title
   A. SECTION TITLE
      1. Subtitle
         a) Vocabulary Word:
            (1) Important Detail #1
            (2) Important Detail #2
      2. Subtitle
         a) Important Detail #1
            (1) Vocabulary Word:
            (a) Ex:
            (b) Ex:
   B. SECTION TITLE
      1. Subtitle
         a) Important Detail #1
      2. Subtitle
         a) Important Detail #1
         b) Important Detail #2
         c) Important Detail #3
            (1) Ex:
            d) Vocabulary Word:
   3. Subtitle
      a) Important Detail #1
      b) Important Detail #2
   C. SECTION TITLE
      1. Subtitle
         a) Important Detail #1
         b) Vocabulary Word:
            (1) Ex:
our obligation to make sure that they have support as they practice this important skill. Online Figures 3 and 4 show the progress made by a student with special needs within one week (see Online Supplemental Materials).

Timothy F. Slater (2003) states that “teaching for deep understanding instead of simple factual recall is a tough challenge—but a worthy one.” Although it is challenging at the time, students consistently report that the outlining skill has proved invaluable. Outlining informational text allows students to analyze and evaluate content-based information, and then creatively organize it in a framework for learning. In a world flooded with information, would educators rather teach students to take notes or make them? The choice is only obvious if our goals are the genuine integration and transfer of knowledge.

REFERENCES


Slater, T.F. 2003. When is a good day teaching a bad thing? The Physics Teacher 41 (7): 437–38.


RESOURCES
Screencastify—www.screencastify.com
Video 1: How to make an outline—https://goo.gl/sADhRb
Video 2: Getting started on Ch2.1—https://gao.gl/XEovZU
Video 3: Getting started on Ch2.2—http://youtu.be/RmyaNJKHbyw
Video 4: Outlining tips and shortcut keys—http://youtu.be/cV5T6weu3So

ONLINE SUPPLEMENTAL MATERIALS
Figure 1: Outlining rubric—www.nsta.org/scope1810
Figure 2: Holt Science & Technology physical science text—www.nsta.org/scope1810
Figure 3 and 4: Progress made by a student with special needs—www.nsta.org/scope1810

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