

READING, WRITING, & INQUIRY

in the SCIENCE
CLASSROOM
Grades 6–12

Strategies to
Improve
Content
Learning

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Common Latin Roots of Words

In science, many of our vocabulary words have Latin roots. Below are some of the common ones. Keep this sheet in your science notebook and add your own words as you encounter them.

Latin Root	Meaning	Words You May See
Aud	Hear	Audio
Carbon	Carbon – coal	Carboniferous
Chron	Time	Chronological
Cred	Trust or believe	Credible
Duct (ducere)	Lead	Conduct
Gen	Race, family	Genetics
Gram	Written	Diagram
Ject	Throw	Eject
Log	Word	Dialogue
Man	Hand	Manual
Phon	Sound	Telephone
Port	Carry	Transport
Spec	See	Spectacle, inspect
Tempor	Time	Temporary
Tract	Pull	Contract
Voc	Voice	Vocal

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INFORMAL WRITING TASKS

Informal writing tasks provide students with opportunities to make personal connections with what they observe or read. Usually, the audience for informal writing is the student or perhaps a partner; thus the act of writing is less threatening. Students are able to connect new information to their prior knowledge. Students may become comfortable mixing scientific or technical vocabulary within their personal conversation styles or dialects. Within an informal format, students may express their own confusions or understandings; they may begin to express their reasoning and inferences. If the teacher does read and respond to informal writing tasks, an opportunity to establish a dialogue can arise. Teachers who respond are able to create an atmosphere for risk taking by acknowledging students' thoughts and opinions without evaluation. Responses may include, "This is an interesting perspective on the question" or "I'd like to hear more about your thinking" or "Could you explain this idea to me?" Teacher responses can encourage students to reconsider ideas or clarify their own thinking. In essence, through responses teachers may encourage students and lead them to a more formal writing style. Furthermore, when students have motivation to explain their ideas to a receptive audience, they may want to express themselves clearly.

During informal writing, grammar and spelling are not an issue although these may be addressed. Typically, informal writing is not graded except for perhaps participation in the activity; they could be included in students' portfolios to document growth. Nevertheless, informal writing can be an excellent vehicle for assessment of student progress toward a goal. Teachers can determine if students understand concepts, if they have misconceptions or confusions, or if students are able to define problems or issues.

Informal writing can take many forms. Many times, it is difficult to separate reading and writing activities. Informal writing may be used in conjunction with pre-reading, during reading, or post-reading activities or with investigations requiring data creation and analysis. If you refer back to Chapters 2 and 3, you can see where writing was integrated. Below are several examples of informal writing activities that may be adapted for different purposes by the teacher.

The Think-Write-Share-Write activity is similar to the Think-Pair-Share activity recommended for cooperative learning. The Think-Write-Share-Write extends the concept of discussions (talk) to writing. It can also be modified to stop the activity after sharing instead of asking students to go back and edit; encouraging students to edit at this point can help when students are later asked to do more formal writing.

Figure 4.2 Think-Write-Share-Write Strategy

This activity encourages students to communicate their ideas with a partner—a step in social construction of knowledge. Students write a response to an activity or question, then they share the information with a partner. The partner may ask for clarification of the idea or may ask a follow-up question. The student goes back and rewrites the response if necessary. This gives a student practice in editing his or her written work but in a nonthreatening, informal setting. The student knows he or she has an audience; often, it is easier for students to share their writing with a peer than a teacher.

Example: Students are given dilemma cards that allow them to explore their feelings about ways humans interact and possibly harm the environment. They then communicate their ideas as to what they would do. Their partner helps them clarify their beliefs and see how their actions can affect various situations.

The Learning Log strategy addresses several issues that may inhibit students' writing. First, the prompts are nonthreatening. Students have control over what they put down. They are not answering informational questions that you asked. Also, students can sense that you think their ideas are important. When you ask them to tell you what they would like to learn, you are asking

Figure 4.3 Learning Log Activity

At the end of each class session, students are asked to reflect upon what they did and what they learned. These learning logs may be kept in a notebook or computer file. Students may use them to review what they learned as they begin the next class; they may also reflect upon their entire inquiry process at the end of a unit. The following are some prompts to start their log entries:

- Something I learned today was _____.
 - Something that confuses me is _____.
 - Something that surprised me was _____.
 - Something I would like to learn more about is _____.
 - A personal connection I made was _____.
 - If I could ask a scientist something about today's topic, I'd ask _____.
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