Product Overview

Warm Up to Science offers student-centered engagement activities for immediate student involvement. Scientifically based research supports the use of this form of frequent conceptual exposure to enhance student understanding.

Activities are designed to require 5–10 minutes of class time and are written with the cognitive rigor demanded by the Texas Essential Knowledge and Skills (TEKS). Students must use critical thinking skills as they are presented with content-specific activities or with visual stimuli, including charts, graphs, and tables. Depending on the activity, *Warm Up to Science* items can be used as engagement for a new lesson, as a method to practice skills and enhance retention, or as a means to support preparation for summative assessments. The sequence of activities follows the order of the correlated TEKS and does not imply a recommended order of presentation.

Warm Up to Science is presented in an even-odd page format. The odd-numbered pages include activity answer keys and supportive teacher notes. The even-numbered pages present specific student activities that are easily photocopied. Use a photocopy setting to reproduce activities with graphics or photographs.

The digital version of *Warm Up to Science* is presented in the opposite order of the print version. The student page comes before the teacher page. This design lessens the chances of students seeing answers first. After students work through the activity, the teacher can easily advance to the next screen for students to self-check their work if desired.

Why Begin Class with a Warm-Up?

Warm Up to Science activities are written to be brief and targeted. This format can provide a quick snapshot of students' prior knowledge, comprehension of a concept, and/or mastery of a skill. As a result, *Warm Up to Science* can provide educators with valuable formative assessment data to inform educational practice and support differentiation.

Warm Up to Science incorporates instructional strategies that have been scientifically proven to enhance student achievement. Some examples of these effective instructional strategies identified in research focus on the teacher's ability to set high expectations for students, activate prior knowledge, provide feedback that reinforces learning, and allow for recognition of effort. In this type of learning environment, students will have the opportunity to

- identify similarities and differences,
- summarize information,
- practice process and critical thinking skills, and
- interpret nonlinguistic stimuli.

Notebooking

Many of the warm-up activities ask students to record the question and their answers in a notebook, which reduces the number of copies needed. Keeping a science notebook also provides an effective way for students to save information about experiences for future use and to reflect upon those experiences (Marcarelli, 2010). The process of notebooking

- creates a space for students to reflect about experiences and encourages insight into activities,
- allows students opportunities to create,
- encourages students to process what they are learning,
- allows for the free flow of students' ideas and feelings,
- gives a broader perspective over time and encourages students to reread and identify recurring themes,
- provides students with a safe format to communicate in a healthy and constructive way, and
- involves student expression and exploration of thought.

An interactive notebook is another tool students use in activating prior knowledge, recording learning experiences, and revising their thinking about the topic or concept. The input is the content learned, and the output is reflective thought gained through learning experiences. Benefits of using of an interactive notebook include developing students' thinking skills, increasing communication, and differentiating instruction (Marcarelli, 2010).

References

Keeley, P*. (200*8). *Science formative assessment: 75 practical strategies for linking assessment, instruction, and learning*. Thousand Oaks, CA: Corwin Press.

Marcarelli, K. (2010). *Teaching science with interactive notebooks*. Thousand Oaks, CA: Corwin.