The University of Texas at Austin
Sanger Learning Center
School of Undergraduate Studies

Scanning & Skimming

Scanning and skimming are NOT equivalent to reading. You will want to read most of your course material closely in order to understand it in depth, but sometimes you just need to get the main ideas from a text or pull out a few select facts. In these situations, scanning and skimming come in handy.

Scanning
This is a method of covering pages and paragraphs quickly in search of the answer to one question, i.e. one detail or one fact. Use the following steps to scan a text:

- Before reading, decide what you're looking for and in what form it will most likely appear in print: a name, a statistic, a concept, etc.
- Scan for appropriate clues: capital letters to locate names, numbers to pinpoint statistics, related words to indicate concepts.
- Scan only for what you're seeking; don't be distracted by other words, pictures, etc.
- If reading an electronic text, use the "find" function to locate relevant passages.

Skimming
This is a method of reading only selected portions of material in order to obtain knowledge of the general ideas and major supporting details. Many people think skimming is a casual, haphazard process, but it actually requires intense focus. Use the following steps to skim a chapter from a textbook:

- Before reading the chapter, read the title, introductory remarks, and Table of Contents of the textbook. This will give you the context for the chapter.
- Read the first paragraph that really introduces the chapter. Don't be distracted by attention-getting anecdotes.
- Read the first sentence of each paragraph, and then anticipate what clues it gives you about the rest of the paragraph.
- Scan to pick up the key words essential to completing the main idea and key details of each paragraph.
- Read the last sentence of each paragraph if necessary.
- Read the concluding paragraphs. These often summarize previously introduced information, allowing you to reinforce what you have just learned from scanning.
- Be flexible. Read a whole paragraph if it really seems to be "meaty;" skip a whole paragraph if it is superfluous, repetitious, or just an anecdote.

Practice
Use the techniques on this page to complete the activity.

1. **Scan** the passage on the next page to answer the following questions:

   a. Who discovered X-rays?

   b. What are four characteristics of X-rays?

   c. Where did the name "X-ray" come from?

2. **Skim** the entire passage, and then answer the following questions:

a. What is one **main idea** of this passage?

b. What are two key **supporting details** for the main idea you identified?

Except for a brief description of the Compton effect, and a few other remarks, we have postponed the discussion of X-rays until the present chapter because it is particularly convenient to treat X-ray spectra after treating optical spectra. Although this ordering may have given the reader a distorted impression of the historical importance of X-rays, this impression will be corrected shortly as we describe the crucial role played by X-rays in the development of modern physics.

X-rays were discovered in 1895 by Roentgen while studying the phenomena of gaseous discharge. Using a cathode ray tube with a high voltage of several tens of kilovolts, he noticed that salts of barium would fluoresce when brought near the tube, although nothing visible was emitted by the tube. This effect persisted when the tube was wrapped with a layer of black cardboard. Roentgen soon established that the agency responsible for the fluorescence originated at the point at which the stream of energetic electrons struck the glass wall of the tube. Because of its unknown nature, he gave this agency the name X-rays. He found that X-rays could manifest themselves by darkening wrapped photographic plates, discharging charged electroscopes, as well as by causing fluorescence in a number of different substances. He also found that X-rays can penetrate considerable thicknesses of materials of low atomic number, whereas substances of high atomic number are relatively opaque. Roentgen took the first steps in identifying the nature of X-rays by using a system of slits to show that they travel in straight lines, and that they are uncharged, because they are not deflected by electric or magnetic fields.

The discovery of X-rays aroused the interest of all physicists, and many joined in the investigation of their properties. In 1899 Haga and Wind performed a single slit diffraction experiment, which showed that X-rays are a wave motion phenomenon, and, from the size of the diffraction pattern, their wavelength could be estimated to be 10-8 cm. In 1906 Barkla proved that the waves are transverse by showing that they can be polarized by scattering from many materials.