18.310C Spring 2009   Guidance for explaining algorithms clearly

Be sure you know what your audience knows and doesn't know.
In this case, your audience is an 18.310C student who missed class on the day when the heap sort algorithm was explained, so your audience doesn't know what the heap sort algorithm does or what a heap is.

Before you go into the details of the algorithm, clearly state the algorithm's purpose.
For example, what does the algorithm take as input? What does it give as output? Without this context, it's difficult for your audience to make sense of the steps of the algorithm.

If your explanation has multiple parts, communicate the structure of the explanation.
For example, if you describe the heap sort algorithm by first explaining how to make a heap and then explaining how to sort a heap, be sure to tell your audience that's what you're doing. The audience is likely to be confused by details of the algorithm unless they know how those details fit into the big picture.

Define any terms your audience may not know. Instead of defining all terms at the beginning of the explanation, define terms in context.
For example, to define "heap" in context, you could write something like "The heap sort algorithm sorts a list of numbers from least to greatest by using a structure called a heap. A heap is…"

Defining terms in context helps readers to understand and remember those terms.
(Note: It may be appropriate to list definitions first if those definitions are intended merely as a reminder of *familiar* terms.)

Explain the steps of the algorithm clearly.
It can be very difficult to anticipate what parts of your writing will be confusing to your audience: when you reread text you've written, even confusing sections will make sense to you because you know what the text is intended to say. So try to imagine you're a student who doesn't know about the heap sort algorithm, and reread the text from that point of view, looking for potentially unclear sections. Then revise as needed. Also feel free to ask a friend to read the text and point out confusing sections to you.

Take care with the text.
Be sure you use terms accurately and consistently, proofread the text carefully, etc. If you print the text, you'll catch mistakes that you'd miss on screen. It can also be helpful to read the text out loud—as you read you'll stumble over problematic sections. Go back and revise those sections.

If you have any questions, ask.