PART 2

Communicating in the Technical Workplace

Chapter 5: Researching and Managing Information

Chapter 6: Organizing and Drafting

Chapter 7: Using Plain and Persuasive Style

Chapter 8: Designing Documents and Interfaces

Chapter 9: Creating and Using Graphics

Chapter 10: Revising and Editing for Usability

Chapter 11: Preparing and Giving Presentations
CHAPTER
6
Organizing and Drafting

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CHAPTER OBJECTIVES

In this chapter, you will learn—

- A basic organizational pattern that any document can follow.
- How genres offer patterns for organizing documents.
- How to outline the organization of a document.
- How to use presentation software to organize your information.
- How to organize and draft a document’s introduction.
- Patterns of arrangement for organizing and drafting sections of a document’s body.
- Basic moves used in a document’s conclusion.
While doing research or working on a project, you will pull together many ideas, facts, and observations, drawn from a variety of sources. As you turn to draft your document, you will need to organize that information into patterns that are familiar to your readers. Your challenge is to arrange the information in ways that make it accessible and understandable to them.

Your readers, after all, are interested in the information you have gathered. But, they need you to organize and present that information in a predictable and usable way. Otherwise, they won’t be able to take full advantage of your thoughts and research on the subject.

Fortunately, computers are great tools for helping us manage large amounts of information. They are also able to help us quickly move that information around and arrange it to suit our and our readers’ needs. It’s still up to you, though, to give that information shape, to make it accessible to the readers. You still need to make important decisions about where and when information will appear in the document.

**Basic Organization for Any Document**

Despite their differences, almost all technical documents have one important thing in common. They should all have a beginning, middle, and end. Or, more specifically, all technical documents should have an *introduction*, *body*, and *conclusion*.

**Introduction (Beginning)**—the introduction of your document needs to tell the readers what you are writing about and why you are writing about it.

**Body (Middle)**—the body of your document presents the *content* that the readers need to know to take action or make a decision.

**Conclusion (End)**—the conclusion of the document wraps up your argument by restating your main point(s).

Or, to use the familiar speechwriters’ advice, “Tell them what you are going to tell them. Tell them. Then, tell them what you told them.”

This beginning-middle-end pattern might seem rather obvious, but people disregard it all the time. They regularly forget to include distinct introductions, bodies, and conclusions in their documents. All too often, they toss readers into the details without first telling them the subject and purpose of their documents. Or, their documents end abruptly without summing up the major points.

Introductions and conclusions are especially important in technical documents, because they provide a context, or framework, for understanding the content in the body of the text (Figure 6.1). Without that contextual information at the beginning and end of the document, readers find it very difficult to figure out what the author is telling them. Have you ever read a document that didn’t seem to have a point? More than likely, it was lacking an effective introduction and/or conclusion.
To see an example of a good introduction, body, and conclusion, consider the classic memo in Figure 6.2. In this memo, Roger Boisjoly, an engineer at Morton Thiokol, warns a vice president of the company that the Space Shuttle Challenger is in danger of blowing up. This memo is often referred to as the “smoking gun” memo, which demonstrated that NASA and Morton Thiokol were ignoring erosion problems with the shuttle’s O-rings. These O-rings kept explosive exhaust gases from destroying the rocket boosters—and the shuttle.

The problem described in this memo is clear, and Boisjoly does his best to stress the importance of the problem in the introduction and conclusion. Unfortunately, his and other engineers’ warnings were not heeded by higher-ups.
MORTON THIOKOL, INC

Wasatch Division Interoffice Memo

31 July 1985

2870:FY86:073

TO: R. K. Lund
Vice President, Engineering

CC: B. C. Brinton, A. J. McDonald, L. H. Sayer, J. R. Kapp

FROM: R. M. Boisjoly
Applied Mechanics - Ext. 3525

SUBJECT: SRM O-Ring Erosion/Potential Failure Criticality

This letter is written to insure that management is fully aware of the seriousness of the current O-ring erosion problem in the SRM joints from an engineering standpoint.

The mistakenly accepted position on the joint problem was to fly without fear of failure and to run a series of design evaluations which would ultimately lead to a solution or at least a significant reduction of the erosion problem. This position is now drastically changed as a result of the SRM 16A nozzle joint erosion which eroded a secondary O-ring with the primary O-ring never sealing.

If the same scenario should occur in a field joint (and it could), then it is a jump ball as to the success or failure of the joint because the secondary O-ring cannot respond to the clevis opening rate and may not be capable of pressurization. The result would be a catastrophe of the highest order—loss of human life.

An unofficial team (a memo defining the team and its purpose was never published) with leader was formed on 19 July 1985 and was tasked with solving the problem for both the short and long term. This unofficial team is essentially nonexistent at this time. In my opinion, the team must be officially given the responsibility and the authority to execute the work that needs to be done on a non-interference basis (full time assignment until completed.)

It is my honest and very real fear that if we do not take immediate action to dedicate a team to solve the problem with the field joint having the number one priority, then we stand in jeopardy of losing a flight along with all the launch pad facilities.

R. M. Boisjoly
Concurred by: J. R. Kapp, Manager
Applied Mechanics

Using Genres to Organize Information

Once you move beyond the introduction, body, and conclusion pattern, technical documents can follow a variety of different organization patterns. A report, for example, is very different from a set of instructions. A proposal shows little resemblance to a technical specification. These documents follow completely different patterns of organization, or genres. A genre is a predictable pattern for organizing information to achieve specific purposes.

For instance, a report will tend to include the following sections:
- Introduction
- Methods
- Results
- Discussion
- Conclusion.

A set of instructions, in contrast, will tend to include these sections:
- Introduction
- List of Parts/Tools
- Steps
- Conclusion.

Each genre achieves a different purpose, requiring a different organizational pattern. Once you know your purpose, you should be able to easily figure out what kind of document you are being asked to write and how it should be organized (see Figure 6.3).

### Choosing a Genre

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Genre</th>
<th>Type of Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>I need to tell others about a decision or event.</td>
<td>Correspondence (Chapters 12 and 16)</td>
<td>E-mail, Letter, or Memo</td>
</tr>
<tr>
<td>I need to define a concept or set of terms.</td>
<td>Definition (Chapter 17)</td>
<td>Technical Definition, Glossary</td>
</tr>
<tr>
<td>I need to describe an item, product, or service.</td>
<td>Description (Chapter 18)</td>
<td>Technical Description, White Paper</td>
</tr>
<tr>
<td>I need to explain how to do something.</td>
<td>Procedure (Chapter 19)</td>
<td>Instructions, Specifications, Procedures</td>
</tr>
<tr>
<td>I need to make a suggestion or propose a new project.</td>
<td>Proposal (Chapter 20)</td>
<td>Research Proposal, Planning Proposal, Implementation Proposal</td>
</tr>
<tr>
<td>I need to provide on-line information to others.</td>
<td>Hypertext (Chapter 14)</td>
<td>Website, Multimedia Document, CD-ROM</td>
</tr>
<tr>
<td>I need to tell the public about an experience, product, or service.</td>
<td>Narrative (Chapter 23)</td>
<td>Article for Website, Magazine, Newsletter, or Newspaper</td>
</tr>
<tr>
<td>I need a job.</td>
<td>Resume (Chapter 15)</td>
<td>Portfolio, Resume, Scannable Resume</td>
</tr>
</tbody>
</table>

Want to learn about the history of genres? Go to [www.ablongman.com/johnsonweb/6.2](http://www.ablongman.com/johnsonweb/6.2)
Always keep in mind, though, that genres are patterns, not formulas. There are countless ways to organize reports and instructions, depending on the needs of the readers and the context. However, you will find that reports and instructions tend to include the elements listed above. You can use these basic patterns called genres as starting places from which to begin organizing and drafting your documents.

Chapters 16 through 23 discuss each of these genres separately in depth. When you begin writing one of these documents, you should turn to the chapter that describes it.

**Outlining the Document**

Once you have identified the genre of your document, you can begin developing a rough outline of its organization.

Outlining may seem a bit old-fashioned, but it is very helpful when you are trying to sort out your ideas, especially when you are writing a large technical document. In the workplace, most people sketch out a rough outline to help them organize their ideas. In their outline, they type the document’s main headings on the screen (Figure 6.4). Then, they list the contents of each section separately. The outline will usually change as new ideas, evidence, or issues emerge.

If you are unsure how to outline your document, let the genre you are following guide your thought process. The genre should give you a good sense of the larger sections of the document. From there, you can begin filling in the smaller topics in each section.

**A Rough Outline**

![Outline](image)

Figure 6.4: An outline doesn’t need to be formal, and it should always be open to change. Here is a rough outline with some guesses about what kinds of topics will be discussed in the report.
When outlining, you might also consider using the Outline View in your word processor. In Outline View, you can begin arranging your information by listing the headings for the document’s major sections and subsections (Figure 6.5). Then, you can decide if

- smaller sections should be merged or incorporated into larger sections
- larger sections should be divided into separate sections
- any need-to-know information is missing in sections
- too much want-to-tell information exists.

While you are revising your document, Outline View also helps you quickly move information around. You can “collapse” a whole part of a document under a heading. Then, you can cut and paste to move that part somewhere else in the document.

Outline View

Outline View is especially helpful when you are brainstorming with a team of coworkers on a large project.

Outline View is a great tool when you are working with a team. When you and your team are brainstorming about a project or document, just toss your ideas into Outline View. Then, when you’re finished brainstorming, you can start organizing all that information into a more structured outline. At the end of the meeting, you can print out the outline or e-mail it to the whole group to guide the drafting of the document.

For more information on working with a team, see Chapter 13, page 45.

Overall, an outline should be as flexible as the document itself. A computer-generated outline can be a helpful tool for planning, drafting, and revising your work.
Organizing with Presentation Software

Not everyone likes using outlines, but as documents get larger it becomes increasingly difficult to organize all that information without some kind of outline. One clever way to organize your information is to use presentation software, like Corel Presentations or MS PowerPoint, to frame and arrange your ideas. Even if you don’t need to present your materials orally, using the presentation software will help you structure and clarify your thoughts.

Let’s say you need to write a report. You have collected a large amount of information from the Internet, empirical studies, interviews, and trips to the library. You are almost overwhelmed by the amount of information you need to put into your report. Presentation software will force you to boil all that information down into headings and bullet points. Before too long, you will have created a very effective outline with which to start drafting.

To organize your materials with presentation software, follow these steps:

1. Create a title page and write a title.
2. State your document’s main point as a subtitle on the title page.
3. Create an introduction page that states your subject, purpose, and the importance of the subject.
4. Create a new page for each section of your document, and give it a unique title.
5. Create a conclusion page that restates your main point and looks to the future.

Then, working section by section, fill in your information using only bulleted lists. For each slide, use a new title and limit yourself to two to five bullets (see Figure A). If one of your slides only has one bullet of information, merge its contents with another neighboring slide. If a slide has more than five bullets, divide the slide into two separate slides with unique titles.

As you fill in your information, you will find that the presentation software forces you to think about:

- whether information is need-to-know or want-to-tell
- how smaller pieces of information fit into larger sections
- where you are missing information that the readers will need to know
- how you can express the information you gathered in concise ways.

When you have finished filling in the slides, you will be able to review the structure of your whole document. Now, you can sharpen and clarify the materials by editing your slides. You might move some slides around, consolidate a few, and expand others. You should also pay attention to the titles of the slides, because they will eventually become the headings in the written document.

When you are done filling and editing the slides, you will have created a very helpful outline for writing your document. Each of the slides will probably become a section of your written document. Each of the bullet points will probably need a paragraph or two of coverage.

Ultimately, you are using the presentation software as an outlining tool. But the presentation software is much more flexible and visual than a written outline. Try out this technique. You will find it very effective.
Organizing and Drafting an Introduction

As you begin organizing and drafting your document, put yourself in your readers’ place. When you begin to read something, what information do you want to know up front? More than likely, you want answers to the following kinds of questions:

- What is this document about?
- Why did someone write this to me?
- What is the main point?
- Is this information important?
- How is this document organized?

When an introduction answers these questions up front, readers are better able to understand the rest of the document.

Six Opening Moves in an Introduction

These kinds of questions translate into six opening “moves” made in an introduction:

- Define your subject.
- State your purpose.
- State your main point.
- Stress the importance of the subject.
- Provide background information.
- Forecast the content of the document.

As you begin drafting your document on your computer, it is helpful to first put your responses to these opening moves on the screen. Later, you can shape your responses into a smooth, coherent introduction. It’s not critical that you write the
introduction right now. However, you should have a clear idea about the subject, purpose, and main point before you start writing anything else.

MOVE 1: DEFINE YOUR SUBJECT  Tell the readers what your document is about by defining the subject.

Flooding has become a recurring problem in Darbey, our small town nestled in the Curlew Valley south of St. Louis.

In some cases, to help define the boundaries of your subject, you might also tell the readers what your document is not going to cover.

This memo addresses the issue of smoking outside the main hospital building. We are not concerned about your smoking habits at home. We are only concerned about smoking on the hospital’s premises.

MOVE 2: STATE YOUR PURPOSE  Tell the readers what you are trying to achieve. Your purpose statement should be clear and easy to find in the introduction. It should plainly tell your readers what the document will do.

This proposal offers some strategies for managing flooding in the Darbey area.

You should be able to articulate your purpose in one sentence. Otherwise, your purpose may not be clear to your readers—and perhaps not even to yourself.

LINK For more information on crafting a purpose, go to Chapter 2, page 6.

MOVE 3: STATE YOUR MAIN POINT  Tell the readers the key idea or main point that you would like them to take away from the document. Usually your main point is your overall decision, conclusion, or solution that you would like the readers to accept.

The only long-term way to control flooding around Darbey is to purchase and restore the wetlands around the Curlew River, while enhancing some of the existing flood control mechanisms like levees and diversion ditches.

Are you giving away the ending by telling the readers your main point up front? Yes. But then, technical documents are not mystery stories. Just tell the readers your main point in the introduction. That way, as they read the document, they can see how you came to that decision.

MOVE 4: STRESS THE IMPORTANCE OF THE SUBJECT  Make sure you give your readers a reason to care about your subject. You need to answer their “so what?” questions if you want them to pay attention and continue reading.

If development continues to expand between the town and the river, the flooding around Darbey will only continue to worsen, potentially causing millions of dollars in damage.

MOVE 5: PROVIDE BACKGROUND INFORMATION  Typically, background information includes material that the readers already know or won’t find controversial. This material could be historical, or it could stress a connection with the readers.

For sample introductions you can model, see www.ablongman.com/johnsonweb/6.7
As we mentioned in our presentation to the City Council last month, Darbey has been dealing with flooding since it was founded. Previously, the downtown was flooded three times (1901, 1922, and 1954). In recent years, Darbey has experienced flooding with much more frequency. The downtown was flooded in 1995, 1998, 2000, and 2003.

**TAKE NOTE** In a scientific article, a “literature review” might be provided in the introduction to give the readers some background on the subject.

**MOVE 6: FORECAST THE CONTENT** Forecasting describes the structure of the document for your readers by identifying the major topics it will cover.

In this proposal, we will first identify the causes of Darbey’s flooding problems. Then, we will offer some solutions for managing future flooding. And finally, we will discuss the costs and benefits of implementing our solutions.

Forecasting helps the readers visualize the organization of the rest of the document. It gives them a map to anticipate the topics the document will cover.

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**Two Versions of an Introduction**

**Subject**

Solving the Flooding Problems in Darbey, Missouri: A Recommendation Report

Flooding has become a recurring problem in Darbey, our small community set in the Curlew Valley south of St. Louis. As we mentioned in our presentation to the Darbey City Council last month, the town has been dealing with flooding since it was founded. Unfortunately, the problem seems to be growing worse. Previously, the downtown was flooded three times (1901, 1922, and 1954). In recent years, though, Darbey has experienced flooding with much more frequency. The downtown has flooded in 1995, 1998, 2000, and 2003.

**Purpose**

This proposal offers some strategies for managing flooding in the Darbey area. We argue that the only long-term way to control flooding around Darbey is to purchase and restore the wetlands around the Curlew River, while enhancing some of the existing flood control mechanisms like levees and diversion ditches. Otherwise, if development continues to expand between the town and the river, the flooding around Darbey will only continue to worsen, potentially causing millions of dollars in damage.

**Main Point**

In this proposal, we will first identify the causes of the Darbey’s flooding problems. Then, we will offer some solutions for managing future flooding. And finally, we will discuss the costs and benefits of implementing our solutions.

**The Causes of Flooding in Darbey**

When the town of Darbey was founded in 1879, the Curlew River and area around it was much different than it is now. The river itself was a mostly tame stream that...
Solving the Flooding Problems in Darbey, Missouri: A Recommendation Report

This proposal offers strategies for managing flooding in the Darbey area. The only long-term way to control flooding around Darbey is to purchase and restore the wetlands around the Curlew River, while enhancing some of the existing flood control mechanisms like levees and diversion ditches. Otherwise, if development expands between the town and the river, the flooding around Darbey will only continue to worsen, potentially causing millions of dollars in damage.

We cannot ignore this problem. Flooding has become a recurring problem in Darbey, our small community set in the Curlew Valley south of St. Louis. As we mentioned in our presentation to the Darbey City Council last month, this town has been dealing with flooding since it was founded. Previously, the downtown was flooded three times (1901, 1922, and 1954). In recent years, however, Darbey has experienced flooding with much more frequency. The downtown has flooded in 1995, 1998, 2000, and 2003.

In this proposal, we will first identify the causes of the Darbey’s flooding problems. Then, we will offer some solutions for managing future flooding. And finally, we will discuss the costs and benefits of implementing our solutions.

Is it true that writers should not write the introduction first?

Never start at the beginning, and never end at the end. Start writing where you feel comfortable and weave your web of words from there. There is no law saying you should write the first paragraph of the document first. Truthfully, there ought to be a law against it. After all, the introduction is by far the most difficult piece to write.

Think about it: The opening paragraph is where you either grab your readers and pull them into your thoughts, or it is where they yawn, stretch, and look for something else to read.

Of course, take the time to create an organizational outline. Write down your purpose and main point. These are essential tasks to creating any strong document. You must know what you are writing about before banging out words, and you must have an understanding of the overall structure of the document. But don’t feel obligated to write the first word your reader will see as your first word.

A document is really just a puzzle. Start by creating the pieces of the document puzzle. Then, fit these pieces into place once you are ready. If that means writing the introduction last, so be it. Your document will be better for it.
Drafting with the Six Moves

In an introduction, these moves can be made in just about any order. Figure 6.6, for example, shows how the introductory moves can be used in different arrangements. Information that goes beyond these six moves should not be put in the introduction. It should be saved for the body of the document. After all, any information in the introduction that goes beyond the six moves will only make it more difficult for the readers to figure out the subject, purpose, and main point of your document.

As discussed more thoroughly in Chapter 14, homepages in websites are also introductions. For example, the homepage shown in Figure 6.7 also makes the typical moves found in an introduction.

A Homepage

![Figure 6.7: The homepage for a website should also make the opening moves found in an introduction.](image)

Organizing and Drafting the Body

The body of the document is where you are going to provide the content that the readers need to know. Here is where you will give them the information they need (facts, details, examples, and reasoning) to understand your subject and/or take action.

Carving the Body into Sections

With the exception of small documents (e.g., small memos or letters), the bodies of technical documents are typically carved into sections. In many ways, sections are like
A Section with an Opening, Body, and Closing

**MINIATURE DOCUMENTS** need their own beginning, middle, and end. They typically include **an opening**, **body**, and **closing** (Figure 6.8).

**OPENING** An opening is usually a sentence or small paragraph that identifies the subject and purpose of the section. The opening includes a claim or claims that the rest of the section will support.

*Results of Our Study*

The results of our study allow us to draw two conclusions about the causes of flooding in Darbey. First, Darbey's flooding is mostly due to the recent construction of new levees by towns farther upriver. Second, development around the river is taking away some of the wetlands that have protected Darbey from flooding in the past. In this section, we will discuss each of these causes in depth.

**SECTION BODY** The body of a section is where you will offer support for the claim you made in the opening. The body of a section can run anywhere from one paragraph to many paragraphs, depending on the purpose of the section. For example, if you are discussing the results of a research study, your Results section may require three or more paragraphs in the body—one paragraph per major result.

**CLOSING (OPTIONAL)** Larger sections sometimes need a closing paragraph or sentence to wrap up the discussion. A closing usually restates the claim you made in the opening of the section. It might also look forward to the next section.
In sum, these two causes will likely only become more significant over time. As upriver towns grow in population, there will be more pressure than ever to build more levees to protect them. Meanwhile, if development continues in the available wetlands around the Curlew River, Darbey will find some of its last defenses against flooding have disappeared.

Overall, a section should be able to work as a stand-alone unit in the overall document. By having its own beginning, middle, and end, a well-written section feels like a miniature document that makes a specific point.

Patterns of Arrangement
When writing each section, you can usually follow a pattern of arrangement to organize your ideas. These patterns are based on logical principles, and they can help you organize your information so that your views will be presented in a reasoned way. Major patterns of arrangement are:

- Cause and Effect
- Comparison and Contrast
- Better and Worse
- Costs and Benefits
- If . . . Then
- Either . . . Or
- Chronological Order
- Problem/Needs/Solution
- Example

You will find that each section in your document likely follows one of these patterns of arrangement. One section, for example, may discuss the causes and effects of a problem. A later section might use a discussion of the costs and benefits of doing something about the problem. So, as you are organizing and drafting each section, decide which pattern of arrangement best fits your needs.

Then, use these patterns to guide your drafting of each section. These patterns are not formulas, but they can provide you with helpful structures for presenting your ideas. Some of these patterns are probably already familiar to you.

CAUSE AND EFFECT  In a sense, all events are subject to causes and effects. For example, if a bridge suddenly collapsed, investigators would immediately try to determine the causes for the collapse.

In 2002, the I-40 bridge over the Arkansas River collapsed for a few different reasons. The actual collapse occurred when a runaway barge on the river rammed into one of the bridge’s supports. But other causes were evident. The bridge was already weakened by erosion around the pilings, deteriorated concrete, and attrition due to recent seismic activity.

A cause can also have various effects.

Leaving a wound untreated can be dangerous. The wound may become contaminated with dirt and germs, thus requiring more healing time. In some cases, the wound may grow infected or even gangrenous, requiring much more treatment at a hospital. Infections can be life-threatening.

As you discuss causes and effects, show how effects are the results of specific causes (Figure 6.9).
A Section Using Cause and Effect

Buckinghamshire Flooding Facts

Flooding—Cause and Effect

In Buckinghamshire, as with other inland counties, there are three main causes of flooding, which are river (also known as riparian), flash, and groundwater. In all three cases the ability of the ground to absorb rainfall, like a sponge, plays a major part, and this will vary according to weather conditions.

River flooding occurs when rivers cannot cope with the amount of water draining into them off the land. In the winter months this is usually because the ground has become saturated and can no longer absorb water properly, so when rainfall is heavy and/or prolonged, runoff reaches the rivers faster and eventually they overtop their banks, as happened along the River Thames in January 2003.

Flash flooding can happen anywhere at any time, although it is more likely in the summer months when the ground is hard and dry. Sudden downpours, such as those associated with thunderstorms, cannot soak in fast enough and the water runs off quickly into drains, ditches, and culverts that cannot cope with the volume. Sometimes there is so much rain that a hillside may have the soil washed off it—often into nearby properties.

Groundwater flooding is rare, occurring only when the underground water table rises to an unusually high level. After the very heavy autumn and winter rainfall of 2000/01, the water table in the Chilterns was at its highest level for decades. Springs and wells that had been dry for, in some cases, 50 years or more began to flow again and did so throughout the summer, causing property flooding in many areas. Groundwater again rose significantly following the very wet winter of 2002/03, though fortunately the drier spring weather meant that levels did not reach a critical point.

Whatever the cause, the effects are much the same. If floodwater enters your property it will ruin carpets, furniture, household goods, decor, and electrics. Often floodwater will be mixed with raw sewage, as drains overflow. Even when the flood recedes, your home will take a long time to dry out and may smell for weeks. Plaster may have to be stripped off walls. If you are fully insured there should be no problem in getting the necessary repairs paid for, but the whole process will probably take months, and the experience is severely depressing. People who have been flooded will often say that it is far worse than being burgled.

Source: Buckinghamshire County Council,

COMPARISON AND CONTRAST You can compare and contrast just about anything. When comparing and contrasting two things, first identify all the features that make them similar. Then, contrast them by noting the features that make them different (Figure 6.10).
A Section Using Comparison and Contrast

**Similar Plans of Hemyock and Bodiam Castles**

The plan of Hemyock Castle has similarities with Bodiam Castle in Kent, built some five years later.

Both Hemyock and Bodiam are typical of small late medieval castles: a rectangular site with high, round corner towers and central interval towers, connected by a high curtain wall; all topped with crenellations; surrounded by a water-filled moat. Both had massive fortified gatehouses. The two castles were roughly the same size. Even the detail of Hemyock’s NE Tower appears similar to Bodiam’s Well Tower.

There were obvious differences:

- Hemyock Castle was built around the family’s old manor house, whereas Bodiam Castle was built on a new site.
- Judging by the remains, Bodiam Castle appears to have been more lavish.
- Bodiam’s interval towers were rectangular rather than round.
- Bodiam has a huge moat.

Presumably, Hemyock Castle was more functional. Much of the accommodations would have been provided by the old manor house, so the defensive outer walls could be simpler. This would also have allowed the use of stronger, more functional round towers. The rectangular towers at Bodiam were required to provide comfortable accommodations. Further accommodation was built into Bodiam’s outer walls.

Bodiam had a huge, if easily drained, moat and complex entrance causeways. Bodiam’s moat was more functional but not easily drained. Hemyock’s western entrance (now lost) may have included a short defensive causeway.

The massive gatehouse at Hemyock’s eastern entrance was protected by a drawbridge across the moat and by outer bastions (now the “Guard Houses” holiday cottages). In recent centuries there have been great changes around Hemyock’s eastern entrance, including diversion of the river (St. Margaret’s Brook) and extension of St. Mary’s Church. It is just possible that there was a more complex series of defenses and water obstacles.

*Source: Hemyock Castle, http://www.hemyockcastle.co.uk/bodiam.htm.*

By comparing and contrasting two similar things, you can give your readers a deeper understanding of both.

**BETTER AND WORSE**  In technical workplaces, you are often faced with moments in which you need to choose among different paths. In these cases, you may need to play the advantages off the disadvantages.
Automating our assembly line with robotic workstations has clear advantages. With proper maintenance, robots can work around the clock, every day of the week. They don’t take vacations, and they don’t require benefits. Moreover, after an initial up-front investment, they are less expensive per unit than human labor.

Our alternative to automation is to stay with human labor. Increasingly, we will become less profitable, because our competitors are moving their operations to offshore facilities, where labor is much cheaper and environmental laws are routinely ignored. Meanwhile, the increasing costs of health care and an aging workforce will eventually force us to close some of our manufacturing plants in North America.

COSTS AND BENEFITS By directly weighing the costs and benefits, you can show the readers that the price is ultimately worth the benefits of moving forward with a project.

Economic and Other Benefits to the State
The benefits of a biomass-to-ethanol production industry for California’s economy are potentially greater than the cost of state support for such an industry. The economic analysis estimates statewide economic benefits of $1 billion over a 20-year period, assuming state government incentives totaling $500 million for a 200-million-gallon-per-year ethanol industry.

The economic benefits of an in-state ethanol industry result from feedstock handling and processing activities, ethanol plant construction and operation, and product marketing. All contribute income to California’s economy, due primarily to employment.

Important environmental benefits also stand to be realized by a California biomass-to-ethanol industry, although these benefits are difficult to quantify in monetary terms. Nevertheless, environmental benefits would be real and should be considered in public policymaking regarding development of such an industry.


Stressing the benefits to the readers is always a good way to reason with them. By putting the costs in contrast to these benefits, you can show how the advantages ultimately outweigh the price.

IF . . . THEN Perhaps the most common way to reason is using if . . . then sentences and paragraphs. Essentially, you are saying “If you believe in X, then you should do Y” or perhaps “If X happens, then Y is likely to happen also” (Figure 6.11).

When using if . . . then arguments, you are leveraging something the readers already believe or consider possible to convince them that they should believe or do something further.
A Section Using If . . . Then

Effects of Climate Change on Forests

The projected 2°C (3.6°F) warming could shift the ideal range for many North American forest species by about 300 km (200 mi.) to the north. If the climate changes slowly enough, warmer temperatures may enable the trees to colonize north into areas that are currently too cold, at about the same rate as southern areas became too hot and dry for the species to survive. If the earth warms 2°C (3.6°F) in 100 years, however, the species would have to migrate about 2 miles every year.

Trees whose seeds are spread by birds may be able to spread at that rate. But neither trees whose seeds are carried by the wind, nor nut-bearing trees such as oaks, are likely to spread by more than a few hundred feet per year. Poor soils may also limit the rate at which tree species can spread north. Thus, the range over which a particular species is found may tend to be squeezed as southern areas become inhospitably hot. The net result is that some forests may tend to have a less diverse mix of tree species.

Several other impacts associated with changing climate further complicate the picture. On the positive side, CO2 has a beneficial fertilization effect on plants, and also enables plants to use water more efficiently. These effects might enable some species to resist the adverse effects of warmer temperatures or drier soils. On the negative side, forest fires are likely to become more frequent and severe if soils become drier. Changes in pest populations could further increase the stress on forests. Managed forests may tend to be less vulnerable than unmanaged forests, because the managers will be able to shift to tree species appropriate for the warmer climate.

Perhaps the most important complicating factor is uncertainty (see U.S. Climate in the Future Climate section) whether particular regions will become wetter or drier. If climate becomes wetter, then forests are likely to expand toward rangelands and other areas that are dry today; if climate becomes drier, then forests will retreat away from those areas. Because of these fundamental uncertainties, existing studies of the impact of climate change have ambiguous results.


EITHER . . . OR  When using either . . . or statements, you are offering the readers a choice or showing them two sides of the issue. You are saying “Either you believe X, or you believe Y” or perhaps “Either X will happen, or Y will happen” (Figure 6.12).

Statements using either . . . or patterns suggest that there is no middle ground, so you should use this strategy only when appropriate. When used appropriately, an either/or argument can prompt your readers to make a decision. When used inappropriately, these arguments can invite the readers to make a choice you didn’t expect—or perhaps to make no choice at all.
CHRONOLOGICAL ORDER  Time offers its own logic because events happen in chronological order. You can arrange information logically according to the sequence of events.

Three things happen inside the bronchial tubes and airways in the lungs of people with asthma. The first change is inflammation: The tubes become red, irritated, and swollen. This inflamed tissue “weeps,” producing thick mucus. If the inflammation persists, it can lead to permanent thickening in the airways.

Next comes constriction: The muscles around the bronchial tubes tighten, causing the airways to narrow. This is called bronchospasm or bronchoconstriction.
Finally, there’s hyperreactivity. The chronically inflamed and constricted airways become highly reactive to so-called triggers: things like allergens (animal dander, dust mites, molds, pollens), irritants (tobacco smoke, strong odors, car and factory emissions), and infections (flu, the common cold). These triggers result in progressively more inflammation and constriction.


**PROBLEM/NEEDS/SOLUTION** The problem/needs/solution pattern is a common organizational scheme in technical documents, because technical work often involves solving problems. When using this pattern, you should start by identifying the problem that needs to be solved. Then, state what is needed to solve the problem. Finally, end the section by stating the solution (Figure 6.13).

The three-part structure leads the readers logically from the problem to the solution.

**A Section Describing Problems, Needs, and Solutions**

**North Creek Water Cleanup Plan (TMDL)**

North Creek does not meet state standards for swimming and wading because there is too much bacteria in the water. Also, the federal government has determined that Chinook salmon are threatened, and other salmon species face continuing pressure from urban development.

In the 1960s, much of the watershed was home to small ranches and hobby farms. Over the past 40 years, much of the land has been redeveloped with a trend towards more urban, commercial, and suburban residential development. The basin’s hydrology, how water is stored and managed throughout the basin, has also changed.

**Why Are These Waters Polluted?**

Pollution in the North Creek watershed comes from thousands of sources that may not have clearly identifiable emission points; this category of pollution is called “nonpoint” pollution. These nonpoint sources can contribute a variety of pollutants that may come from failing septic systems, livestock and pet wastes, at-home car washing, lawn and garden care, leaky machinery, and other daily activities. Some of these nonpoint sources create fecal coliform bacterial pollution that indicate the presence of fecal wastes from warm-blooded animals. Ecology has confirmed that high levels of fecal coliform bacteria exist in North Creek. For this reason, Total Maximum Daily Loads for fecal coliform bacteria were subsequently established at multiple locations throughout each watershed.

Although wildlife can also contribute bacteria, such sources are not defined as pollution; however, when such natural sources combine with nonpoint pollution, the result can cause the kind of problems found in North Creek.

North Creek became polluted because of the way we do things, not the activities themselves. For example, having dogs, cats, horses, and other animals as part of our life is not a problem; rather, it is the way that we care for these animals. Similarly, roads and parking lots are a necessity of our modern society, but the way we build roads, neighborhoods, and shopping
centers is causing our local streams and creeks to be polluted. There are solutions that can be undertaken by local governments, businesses, organizations, and citizens to solve the problem.

**What Can You Do to Improve North Creek?**

If cleaning up local waters is important to you, think about what you can do on your own first. Do you always pick up after your pet? Can you use organic fertilizer? Do you wash your car on your lawn or take it to a car wash? Can you reduce the amount of stormwater runoff from your property? Can you develop a farm plan to ensure your horse’s manure is not reaching local streams? Do you practice good on-site septic system maintenance? The draft Action Plan includes information about current and future activities to clean up local waters.

There are many things residents can do now to reduce pollution reaching water bodies and to improve water quality. Here are some ways that you can help:

- **Be responsible for proper septic tank maintenance or repair.** If you have questions about your on-site septic system (exactly where it is located, how to maintain it), you can call the Snohomish Health District for technical assistance.

- **Can you reduce stormwater leaving your property?** To have a free survey of your property for ways to reduce potential water quality problems and improve stormwater management, contact Craig Young, your North Creek Basin steward.

- **Keep pet and other animal wastes out of your local streams.** Pick up after your pet and work with your community, association, or local government to get a pet waste collection station installed where it is needed most.

- **Use landscaping methods that eliminate or reduce fertilizers and pesticides.** If fertilizers are needed, organic products break down more slowly and help prevent big flushes of pollution when we have heavy rains; they also improve soil structure.

- **Join local volunteers in planting trees and performing other activities that help local streams.** Snohomish County, the Stilly/Snohomish Task Force and North Creek Streamkeepers, and the City of Bothell water quality volunteer program improve water quality by helping with stream restoration activities. They provide help or other opportunities to plant trees on your property or at other needed locations to help water quality (you can also volunteer to plant trees in other areas that need help too).

- **Get involved in your local government’s programs.** Folks interested in sampling their local waters can contact Snohomish County, North Creek
Streamkeepers, or your local city to explore the availability of volunteer monitoring opportunities. If you live outside of a city, be a Salmon Watcher or Watershed Keeper, or get involved in other individual or group activities to improve local waters; these are coordinated by Snohomish County staff.

How else can you be involved? The solution to polluting our local waters is to do some things a little differently. In this way, we can still live a normal 21st-century lifestyle, have animals as a close part of our lives, and have clean water. Citizen involvement in deciding what needs to be done is essential to making our water bodies safe places for people and fish, and you may be part of helping to design future watershed activities that haven’t even been thought of yet! Check out the Related Links page for more ideas.


**EXAMPLE** Using an example is a good way to support your claims. Your readers might struggle with facts and data, but an example can help put all those technical details into a broader picture.

To fool predators, most butterflies have evolved colors and patterns that allow them to survive. For example, the delicious Red-spotted Purple is often not eaten by birds, because it looks like a Pipevine Swallowtail, a far less appetizing insect. Other butterflies, like anglewings, look like tree bark or leaves when seen from below. If a predator comes near, though, anglewings can surprise it with a sudden burst of color from the topside of their wings (see Pyle, p. 23).

In this passage, the two examples support the claim made in the first sentence. To signal an example, you can use transitions like *for example, for instance, to illustrate, in fact, of course, specifically, and such as.*

### Organizing and Drafting Conclusions

Conclusions are very important, and yet they are often forgotten or poorly written. Here, at the end of your document, is where you are going to drive home your main point for the readers. An effective conclusion rounds out the discussion by bringing the readers back to the subject, purpose, and main point of your document.

Conclusions should be concise and to the point.

As a general guideline, new information should not appear in the conclusion, because it will only redirect your discussion at this crucial point. Instead, you should concentrate on summarizing your main points.

Again, put yourself in your readers’ place. As a document concludes, what do you want to know? More than likely, you want answers to these questions:

- What is the main point?
- Why is this information important to me?
- Where do we go from here?

For sample conclusions that you can model, see [www.ablongman.com/johnsonweb/6.14](http://www.ablongman.com/johnsonweb/6.14)
Five Closing Moves in a Conclusion

These concluding questions translate into five moves that are typically found in a conclusion:

- Make an obvious transition.
- Restate your main point.
- Restress the importance of the subject.
- Look to the future.
- Say thank you and offer contact information.

These five concluding moves will help round off your document, reestablishing the context that you created in the introduction. As with the introduction, sometimes it is helpful to type in these five moves separately on your computer screen. Then, later, you can craft them into a smooth, coherent conclusion.

**MOVE 1: MAKE AN OBVIOUS TRANSITION**  
After reading the body of your document, your readers need to wake up a bit. By using a heading such as “Final Points” or a transitional phrase such as “To sum up,” you will signal to the readers that you are going to tell them your main points. Your readers will sit up and begin reading closely again.

**Transitions that will wake up your readers**
- In conclusion,
- To sum up,
- Let us sum up at this point.
- In summary,
- In closing,
- Put briefly,
- In brief,
- Finally,
- To finish up,
- Ultimately,
- Overall,
- As a whole,
- In the end,
- On the whole,

The readers’ heightened attention, however, will last only for a little while, perhaps for a paragraph or a page. If your conclusion runs more than a page or two, your readers will lose interest. They may even be a bit annoyed by your never-ending, so-called “conclusion.”

**LINK** For more information on using transitions, see Chapter 7, page 39.

**MOVE 2: RESTATE YOUR MAIN POINT**  
You have probably already stated your main point a couple of times in the document. In the conclusion, you need to restate this point one more time to drive it home. After all, your readers now have all the facts, so they should be ready to make a final decision.

If Darbey is to survive and thrive, we need to take action now to address its increasing flood problem. By restoring wetlands, developing greenways, and building levees, we can begin preparing for the flooding problems that are almost certainly a risk in the future.

If you need to be blunt about your main point, be blunt. Your main point should be absolutely obvious to the readers as they finish the document. If you need to highlight your main point, you may need to say something direct, such as, “Our main point is . . .”. Make sure you drive your point home.
Conclusion

In conclusion, if Darbey is to survive and thrive, we need to take action now to address its increasing flood problem. By restoring wetlands, developing greenways, and building levees, we can begin preparing for the flooding problems that are almost certainly a risk in the future.

The benefits clearly outweigh the costs. If we can reduce or eliminate flooding in Darbey, we will save our citizens millions of dollars in lost revenues and reconstruction. Moreover, Darbey will be viewed as a place with a future, because flooding will not continually undo all our hard work.

Don’t try to scare the readers at this point. Stay positive. Stress the benefits of accepting your ideas or agreeing to your recommendations. Scaring the readers will take the shine off your document at this crucial moment.

MOVE 4: LOOK TO THE FUTURE Looking to the future is a good way to end any document (Figure 6.14). A sentence or paragraph that looks to the future will leave your readers with a positive image.

When we have effectively managed the Curlew River, Darbey will likely see steady growth in population and industry. Once its reputation for flooding has been removed, people and businesses will likely move to this area for its riverside charm and outdoor activities. The town would experience a true revival.

MOVE 5: SAY THANK YOU AND OFFER CONTACT INFORMATION You might end your document by saying thank you and offering contact information.

We appreciate your time and consideration. If you have any questions or would like to meet with us about this report, please contact the task force leader, Mary Subbock, at 555-0912 or e-mail her at msubbock@cdarbey.gov.
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This kind of final thank you statement leaves your readers with a positive feeling about you and your document. It also invites them to contact you if they need more information.

- The beginning of a document (introduction) builds a context. The middle (body) provides the content. And, the end (conclusion) rebuilds the context.
- A genre is a predictable pattern for organizing information to achieve specific purposes.
- Outlining may seem old-fashioned, but it is a very effective way to sketch out the organization of a document.
- Presentation software can help you organize complicated information.
- Introductions usually include up to six opening moves: (1) define your subject, (2) state your purpose, (3) state your main point, (4) stress the importance of the subject, (5) provide background information, and (6) forecast the content.
- The body of larger documents is usually carved into sections. Each section has an opening, a body, and perhaps a closing.
- Sections usually follow patterns of arrangement to organize information.
- Conclusions usually include up to five closing moves: (1) make an obvious transition, (2) restate your main point, (3) restress the importance of the subject, (4) look to the future, and (5) say thank you and offer contact information.

Individual and Team Projects

1. Find a document that interests you at www.ablongman.com/johnsonweb/6.16 (or you can find one of your own). Write a memo to your instructor in which you critique the organization of the document. Does it have a clear beginning, middle, and end? Does the introduction make some or all of the opening six moves? Is the body divided into sections? Does the conclusion make some or all of the closing five moves? Explain to your instructor how the document’s organization might be improved.

2. Find an introduction that you think is ineffective. Then, rewrite the introduction, so that it includes a clear subject, purpose, and main point. Also, stress the importance of the document’s subject, provide some background information, and forecast the structure of the document’s body. Sample introductions are available at www.ablongman.com/johnsonweb/6.16.

3. On the Internet, find a homepage that makes some or all of the six opening moves discussed in this chapter. Write a memo to your instructor in which you compare...
and contrast how homepages use the opening moves similarly and differently than introductions in paper-based documents.

4. On the Internet or in a print document, find a section that uses one of the following organizational patterns:
   - Cause and Effect
   - Comparison and Contrast
   - Better and Worse
   - Costs and Benefits
   - If . . . Then
   - Either . . . Or
   - Problem/Needs/Solution
   - Example

Prepare a brief presentation to your class in which you show how the text you found follows the pattern.

You can find sample documents at www.ablongman.com/johnsonweb/6.16 that will use some or all of these organizational patterns.

**Collaborative Project**

Around campus or at www.ablongman.com/johnsonweb/6.16, find a large document, perhaps a report or proposal. With presentation software, outline the document by creating a slide for each section or subsection. Use the headings of the sections as titles on your slides. Then, on each slide use bulleted lists to highlight the important points in each section.

When you have finished outlining, look over the presentation. Are there any places where too much information was offered? Are there places where more information was needed? Where would you rearrange information to make it more effective?

Present your findings to your class. Using the presentation software, show the class how the document you studied is organized. Then, discuss some improvements you might make to the organization to highlight important information.
Chapter 6
Organizing and Drafting

CASE STUDY

The Bad News

In most ways, the project had been a failure. Lisa Franklin was on a chemical engineering team developing a polymer that would protect lightweight tents against desert elements like extreme sun, sandstorms, and chewing insects. Hikers and campers were interested in tents with this kind of protection. But the company Lisa worked for, Outdoor Solutions, wanted to begin selling tents to the military. Bulk sales to the U.S. Army and Marines would improve the company’s bottom line, as well as open new opportunities to sell other products.

Despite a promising start, Lisa and the other researchers were having little success developing a stable polymer that would provide the desired protection. The best polymers they had developed were highly flammable. Tent materials covered with these polymers went up like an inferno when exposed to flame. The nonflammable polymers, meanwhile, seemed to break down within three months of use in desert conditions. Lisa’s boss, Jim Franklin, was convinced they were close to a breakthrough, but they just couldn’t find the right combination to create a nonflammable polymer that would last.

Unfortunately, Jim had been giving the company president the impression that the polymer was already a success. So, the president had already secured a million-dollar loan to retool a factory to produce new lightweight tents coated with the polymer. Renovation was due to begin in a month.

Before starting the factory retooling, the president of the company asked for a final update on the polymer. So, Jim wrote a progress report. Then, he gave the report to Lisa for final revisions, because he was going out of town on a business trip. He said, “Do whatever you want to revise the report. I’m so frustrated with this project, I don’t want to look at this report anymore. When you’re done, send the report to the company president. I don’t need to see it again.”

In the report, Lisa noticed, Jim’s facts were all true, but the organization of the report hid the fact that they had not developed a workable polymer. For example, when Jim mentioned that their best polymers were highly flammable, he did so at the end of a long paragraph in the middle of the report. It was highly unlikely that the president would be reading closely enough to see that important fact.

Lisa knew Jim was trying to hide the research team’s failure to develop a workable polymer. She also didn’t want to admit that they had failed. But she also thought it was important that the company president understand that they had not developed a successful polymer. After all, there was a lot of money on the line.

If you were in Lisa’s place, how would you handle this situation?