

TEACHING NOTES

Pratibha Kale: Shipping Challenge

Appropriate Grade Levels: 6 – 12 (This lesson can be used as the start of a larger research project and career exploration for students in grades 9 – 12)

Implementation Time:

One class period (45 minutes to one hour) required for basic exercise.

An additional class period or more may be required if the teacher wishes to spend more time teaching students about dangerous and hazardous materials or embarking on a science-related research project.

Materials Needed:

Teaching notes for “Pratibha Kale” case study

Student copies of “Pratibha Kale”

Paper and pen for students to use when composing memo

Career Pathway: Business & Management

Subject Area: Science/Communications

What will happen for learners as a result of this lesson?

Students will explore a career opportunity in international trade. They will explore the application of science in a career situation and demonstrate how science information connects to real-life situations. They will then reiterate information they have learned by responding to a persuasive writing prompt.

How will students learn?

- **Science:** Students will explore a challenge which lends itself to being resolved through the application of science or technology; read and comprehend scientific information; and use science vocabulary and concepts appropriately in written explanations. Students will also explore changing technology and the uses of technology in a career setting.
- **Communications:** Students will analyze and reflect on ideas while paying attention and listening in a variety of situations; make well-chosen and varied connections between own purposes and audience interests and needs; create a comprehensive and organized presentation with a clear sequencing of ideas and transitions; and determine effective communication techniques in a career setting.
- **Writing:** Students will practice writing clearly and effectively to explain technical information. Students will practice writing for career applications, producing technical and non-technical documents using resources from career settings.

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How will this lesson plan prepare students to be assessed? *This lesson plan will help prepare students for assessment exams in reading and science. The in-class writing exercise will permit students to demonstrate their ability to respond to a scientific issue by using scientific information effectively in a persuasive memo format.*

Procedure:

This lesson is designed to be taught in one session, though additional classroom sessions may be desired if the teacher wishes to spend more time on dangerous and hazardous materials with students.

1. *Distribute the students' version of the "Pratibha Kale" case study to your class. Divide the students into groups of two or three.*
2. *Read aloud to them or let them read one section of the case study at a time. Don't let them read ahead. After each section, use the discussion questions included with the teaching notes to get students to brainstorm what Pratibha should do next.*
3. *Finish by reviewing with students the basic concepts behind memo writing using the attached "Tips on Preparing Business Memos." Ask students to prepare a memo from Pratibha to the Logistics group that clearly explains the problem and offers help from Pratibha's team.*

Closure/Assessment:

Review students' memos for basic writing and presentation skills, as well as for students' ability to explain the scientific information Pratibha and her team have come across during their research.

Then, in small groups or as a whole group, have students review the steps they should follow when they are confronted with a problem and have to learn something new to solve it. Ask them to share personal experiences of having to collect and understand information to make a decision or solve a problem. What did they do? How did they use the information they gathered? What did they do right or wrong? What would they do if they were confronted with the same problem today?

Pratibha Kale: Shipping Challenge

Part One - Read to the bottom of this page then stop.

Pratibha Kale had just been asked to solve a problem. It was not the first time she had jumped in to solve a challenge, but this one would be difficult.

Pratibha Kale was a Customer Service Manager for shipping company APL Limited. She supervised eight Customer Service Representatives at APL's Western District Office in Mumbai, India. Pratibha and her staff worked with APL's customers to help them calculate how much it would cost and how long it would take to ship cargo to other places. They also worked with people and businesses in Mumbai who had received shipments from other countries: Pratibha and her staff made sure those customers came in to claim their cargo and fill out the paperwork that was required. And she and her staff helped customers who wanted to track down cargo that might currently be almost anywhere in the world.

Pratibha had worked in the shipping business in India for 20 years. During that time, she had seen dramatic changes. When she began working in 1980, for instance, computers were not yet used in her office. Pratibha would use "carbon paper" and a typewriter to make eight to ten copies of the financial and customs documents each shipment of cargo needed. Then, because she had neither e-mail nor a fax machine, she would have to send that paperwork with a messenger to the place the shipment was going. Keeping track of paperwork and getting it where it needed to be was a real hassle!

As she used all this paperwork to make payments to the customs house brokers who arranged to ship cargo with APL, Pratibha became eager for tools that would help her work more efficiently. So, it was not surprising that in 1984, she volunteered to computerize the brokerage payment process – even though she knew almost nothing about computers! She had to learn quickly. she and her team studied each step in the process to figure out what the computer program would need to do, and the system they created was a success.

Today, Pratibha had been given another challenge. And once again, she realized she had a lot to learn.

STOP

Pratibha Kale: Teaching Notes for Part One

Learning to organize information carefully, particularly when that information is needed to make a decision, is a very important skill to learn.

First, make sure students understand what Pratibha does and what APL Limited is. If you have access to the Internet in your classroom, you may want to help students link to www.apl.com to learn more about APL's history around the world.

Then ask students why they think paperwork is so important to Pratibha in her job. Ask them what kind of paperwork they think she tracks and what each kind of information is important.

Students may answer that Pratibha must track paperwork about:

What is in a particular cargo container. It is important to know this since containers look the same from the outside. Without something to tell the shipper what it is, nobody would know what was inside.

Where a container needs to go. Again, because containers look alike, shippers need information that clearly states where a container is going. This paperwork helps make sure the correct containers are unloaded at the correct places.

When a container needs to get there.

Who is shipping the container and who has purchased it. It's very important for a shipper to know who's responsible for a particular shipment. Who will be picking it up? Who must be contacted if something goes wrong?

How the shipment is being paid for. The shipping company must be paid to move the cargo from place to place. And the person buying the cargo must arrange to pay for it from the person who is selling it. Often a great deal of money is involved – many times using different currencies between different countries. So it's important to have careful records.

Permission for the cargo to be brought into a different country. A shipper moving cargo from one country to another must “clear customs” or receive permission to bring the cargo into the new country. To do that, customs officials in the new country will want to know what the cargo is, how much it is worth, who has purchased it, and where it is going.

OPTIONAL: *Lead students through a discussion of how tasks such as completing paperwork and getting information around the world might have been accomplished without computers (just a few decades ago!) and how those same tasks are accomplished today.*

What do they think would have happened to Pratibha in 1984 if, instead of volunteering to lead the move to computerization, she had resisted it, preferring to do her work the way she had always done it?

What do students think changing technologies will mean in their lives and futures?

Part Two - *Read to the bottom of this page then stop.*

Pratibha’s problem had to do with “dangerous and hazardous” cargo (often called DNH cargo). Her office had been receiving complaints from APL offices in the United States that they were not receiving enough information about DNH shipments. Without good information, the cargo could be delayed and APL could even face penalties.

From her work with customers, Pratibha already knew quite a bit about DNH cargo. She knew that the term “DNH” referred very specifically to substances that could be dangerous when they were shipped: chemicals, liquids or solids that could easily catch fire, or substances that would react badly with water. Because of a concern for safety – both the safety of the captain and crew carrying the DNH cargo and also the safety of the overall ocean environment – there were very strict rules for shippers who carried DNH cargo from place to place.

Rules about DNH cargo had been created by an organization called the International Maritime Organization (IMO). The IMO helped make sure shippers around the world all followed the same safety rules both at sea and when they were in port. In addition, each country had established its own rules about shipping and DNH cargo. In the United States, for instance, the U.S. Department of Transportation set the rules about dangerous cargo.

Pratibha knew that there were many different kinds or “classes” of DNH cargo. There were different rules for each class of cargo. The rules were based on how dangerous the cargo was, whether it was a liquid, a solid, or a gas, and what harm the cargo could cause. For instance, shippers were required to carry cargo containers of some highly flammable liquids above the deck of the ship; that way, if there was a fire aboard ship, the flammable cargo could be pushed overboard before it exploded. Pratibha knew that everyone wanted to treat DNH cargo safely and avoid accidents. Her job was to help by making sure all the paperwork which described this cargo arrived on time to the people who needed to see it to know how to deal with the cargo.

STOP

Pratibha Kale: Teaching Notes for Part Two

Review Pratibha's challenge with students. What does she have to do?

Before discussing what Pratibha should do next, review the basics of dangerous and hazardous cargo. Ask students if they can think of examples of dangerous cargo and also why it might need to be moved from one place to another. (Crude oil for gasoline might be a good example.)

Then ask students what Pratibha should do. They might answer that she should:

- Learn the rules about DNH cargo and what paperwork is required.
- Learn why the paperwork is important.
- Learn who is responsible for preparing the paperwork: at APL, at the customers' company, on the ship, etc.
- Find out what is going wrong to delay the paperwork.

You may find the following background information helpful

What is dangerous and hazardous cargo? Dangerous and hazardous cargo is a specific designation that applies to goods that could cause harm to people or the environment during transport. The nine classes of dangerous and hazardous cargo include: (1) explosives; (2) gases; (3) flammable liquids; (4) flammable solids, substances liable to spontaneous combustion, and substances which, in contact with water emit flammable gases; (5) oxidizing substances and organic peroxides; (6) toxic and infectious substances; (7) radioactive materials; (8) corrosives; and (9) miscellaneous dangerous substances and articles.

Who regulates dangerous and hazardous cargo? The International Maritime Organization has developed a set of regulations for dangerous and hazardous cargo. The International Maritime Organization (IMO) is a specialized agency of the United Nations which is responsible for measures to improve the safety of international shipping and to prevent marine pollution from ships. The IMO was created in 1959 and currently has 157 member nations. The IMO prepares regulations about marine safety which it proposes to its member nations for adoption. The IMO does not have the power to enforce its regulations; it merely proposes them. Regulations about shipping dangerous and hazardous cargo are enforced by individual nations. In the case of the United States, these regulations are enforced by the U.S. Department of Transportation.

Part Three - *Read to the bottom of the next page.*

Pratibha knew she couldn't solve the problem alone. So she and her co-workers created a team to work together. They called themselves the "Firebugs," because they were "fired" with determination to make things right the first time and "bugged" by the complaints about late paperwork.

Pratibha had learned a lot from her experiences at APL. She knew that to fix a problem she had to understand step-by-step what was supposed to happen. Then, she could identify where the problems were occurring and fix them.

To start their work, Pratibha and her team became experts on dangerous and hazardous cargo. What did different people – from a ship's captain to a truck driver to a United States customs official – need to know about DNH cargo to make sure they'd treat the cargo safely? What were all the different rules about different kinds of dangerous cargo? And when did all of these people need to know that information?

For instance, Pratibha learned that a ship's captain couldn't just get a letter after he sailed telling him he was carrying three containers full of hazardous chemicals on his ship. He had to know well before he sailed and even before the ship was loaded, since the containers with dangerous chemicals would probably need to be loaded in very specific places so they wouldn't cause problems on board the ship.

Now that she had a good understanding of why the paperwork about DNH cargo was so important, who needed it, and when they needed it, Pratibha turned her attention to the people who created all the paperwork. Who was involved – in the offices of APL customers and at APL offices – in identifying dangerous cargo and calling attention to it through special paperwork?

As Pratibha and her team studied the problem, they learned that people in the Logistics Department who worked at the port were receiving 25% of their DNH paperwork late. The paperwork was late because of problems Pratibha and her staff were having with the paperwork at Customer Service. What could her team do about the problem?

STOP

Pratibha Kale: Teaching Notes for Part Three

Ask students to summarize what Pratibha has learned. What do they think it means for Pratibha and her team that the problems with paperwork seem to be coming from the Logistics Department?

What do students think Pratibha should do next?

Part Four - *Read to the bottom of this page.*

Pratibha quickly realized that no one on the staff meant to cause problems. But they had so much complex information to collect and track that they sometimes didn't get that information to all the other people who needed it.

Pratibha knew she and her Firebugs team could help the Customer Service staff develop better methods to create the paperwork and get it to all the people who needed it. But first she had to find a nice way to make sure they understood there was a problem and then offer to help.

Pratibha decided to write a memo to the Customer Service staff. In her memo, she would:

1. Describe the problem APL's Mumbai office was facing with DNH cargo.
2. Explain why the paperwork was so important and why it needed to be on time.
3. Offer her team's help in solving the problem.

PRATIBHA KALE: Teaching Notes for Assignment

For their assignment, each student will create a memo from Pratibha Kale to the Customer Service staff.

Review Pratibha's dilemma with students: the paperwork is late on one out of every four DNH shipment. This is a potentially very serious problem that could result in penalties for APL or, even worse, in a dangerous accident because DNH cargo is not properly identified.

Prathiba wants to help fix the problem. But how can she communicate the magnitude of the problem to the Customer Service staff and get them to accept her help all without getting them angry? How would student communicate in this situation? Remember, only some of the people in the Customer Service Department work for Pratibha.

You might want to have students act out different ways a conversation between Pratibha and the Customer Service staff might go. Ask students to imagine how they might feel if they worked for the Customer Service Department and felt their work was being criticized.

Then ask students to spend about fifteen minutes composing the memo. A guide to writing business memos and a sample answer key follow.

Tips on Writing Business Memos

The memorandum (or memo) is a common form of business communication. Memos are written by everyone from junior executives and engineers to CEOs. Even in this age of e-mails, mastering the memo format is important, because good professional e-mails and good memos communicate information in exactly the same way.

Memo Format

Unlike letters, which include inside addresses, salutations, and complimentary closings, memos have just two sections: the heading and the body. A memo's heading includes the following information, usually organized like this:

Date: October 29, 1999
To: Customer Service Staff, APL, Mumbai
From: Pratibha Kale, Customer Service Manager, APL, Mumbai
Subject: Dangerous and Hazardous Cargo

Note that the subject line of the memo should be short but accurate, since it often determines where or how the memo will be filed or even if it will be read.

Memo Content

A good business memo is informative but short. It should have a clear purpose. It should take the reader's needs and knowledge into account. And, it should be carefully organized.

The memo's purpose: Before you start writing, think about why you are writing your memo. What do you want your memo to accomplish? Are you just sharing information? Requesting a meeting so that you can discuss the memo in more detail? Requesting something more, such as money or staff? Make sure that your memo explains its purpose to the reader.

Your reader's needs: How much does your reader know about the issue you are discussing in your memo? Does your reader know a lot about it? Or nothing at all? If your reader knows nothing, you will need to begin the memo with a short summary to explain the issue you are writing about. If your reader knows a lot, you can probably skip the background (or just put it at the end of the memo) and move right into the things you want your reader to do.

Organizing the memo: Most memos begin with a one- or two-sentence introduction of the issue you are writing about and the reason you are writing (the memo's purpose). Then, depending on the reader's needs (see above) they either provide background information or go right into the list of issues to be covered. In the case of the memo from Pratibha to the Logistics Department, for example, Pratibha may want to begin by describing the problem.

Memo Style

Memos and e-mails are less formal than business letters. They can be more conversational in tone. However, don't ever put anything in a memo that you don't want to see again. Remember, even if a memo is informal, it is still a written document, and will be in someone's files or on their computer for months or years.

Sample Memo – Answer Key

Date: October 29, 1999
To: Customer Service Staff, APL, Mumbai
From: Pratibha Kale, Customer Service Manager, APL, Mumbai
Subject: Dangerous and Hazardous Cargo

The Status of DNH Cargo

Over the last several years, APL has begun shipping more and more dangerous and hazardous (DNH) cargo for customers. We can be proud of our unblemished safety record to date in handling this cargo safely and carefully for customers. But, as we ship more and more DNH cargo, APL managers have asked us to examine all of our processes to make sure we can continue to promise our customers complete safety with their cargo. I've been asked to lead a team to examine every aspect of our handling of DNH cargo and paperwork to make sure that all our efforts are coordinated.

DNH Paperwork

As we ship more and more DNH cargo, the paperwork for the cargo becomes more and more important. The paperwork accompanying a shipment is often the only way the people loading a ship or checking the cargo through customs know what is inside the cargo container. With DNH cargo – which often must be loaded in a special way on board ship – it is especially important that our paperwork is complete and on time. Our office has encountered some problems recently in keeping up with paperwork for DNH cargo; in fact as many of 25% of our paperwork has been filed late. Thus, an important part of what my team is doing is working with each of our departments to see how we can make sure everyone has all the information they need in a timely manner so that we can get the paperwork out the door in time.

Next steps

I'd like to set up a meeting with you to review the steps you take in working on paperwork for DNH shipments. I hope that by examining the work of every department we can create a new process that will be easier and quicker for everyone. Please let me know when we can get together. I look forward to meeting with you.

Pratibha Kale – Additional Assignments

In addition to the in-class memo assignment, students can also be asked to:

Research a problem at sea that resulted from an accident involving DNH cargo. (An oil spill, a chemical fire, etc.). In a 3- to 5-page paper, please describe how the accident occurred, the damage it caused, and the response to the accident. Did the accident result in any new safety regulations?

Pick a specific type of DNH cargo and research its history. Why does it need to be shipped around the world? Where is it produced? Where is it used? What is it used for? When did it begin to be used? Please prepare a 2- to 3-page paper summarizing your findings.

How has technology changed your community over the last 20 years? Pick an occupation or business in your community – perhaps the place where a parent or neighbor works. Interview someone in that occupation or at that business about how work was accomplished in the 1980s and how it is accomplished today. What has changed? What has stayed the same? Prepare a 2- to 3-page paper summarizing your findings.