**Brought to You by Ship: Tutorial**

*Brought to You by Ship* is a video game in which you run a shipping company. Using ships, you deliver goods to the different islands of the *Game for Science* world. Will you manage your company well? This activity will help you complete your first delivery successfully.


2. Accept the quest proposed by Captain Habor and complete the entire tutorial. In the process, answer the following questions:

   a. What is the cost of each terminal?

   ![gold Polo$]
   ![gold Polo$]
   ![gold Polo$]
b. Write the following labels at the right place on the order below:

- Number of sets of containers required
- Reward
- Amount of fuel required in litres
- Delivery time

![Image of a mobile game interface with icons and numbers]

1. 4
2. 10

1000

Accept

C. Which incident prevented your ship from moving forward?

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________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
d. In the order book, which icon do you have to click to display new orders? Draw your answer in the box below:

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e. What happens if you click on the number of gold Polo$ that you have?
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______________________________________________________________________________
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f. What does clicking on this icon tell you?
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______________________________________________________________________________

Questions about the marine industry

Question words

In playing *Brought to You by Ship*, you have probably noticed that ships can run late for various reasons. To continue, you had to answer quiz questions. By analyzing these questions, you will learn more about interrogative sentences.

An interrogative sentence is used to ask a question.

It ends with a question mark (?)

It can:
- contain a question word (*Example: Where is the captain?*);
- require an inversion of the noun/pronoun and the verb (*Example: Are you the captain?*).

1. Play *Brought to You by Ship* until an incident stops your ship. Write down the question you are asked.

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2. Circle the interrogative word in the sentence.

3. Write down three different questions that your classmates were asked. For each, circle the interrogative word.

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Writing a narrative text

Imagine that you are the captain of a cargo ship! Your mission is to make sure that the ship’s crossing goes smoothly. In this activity, you must write a narrative text about your adventures as a captain.

The purpose of a narrative text is to tell a story. Here are the different parts of a narrative text:

Setting
Who is the character?
Where does the story take place?
When does the story take place?

Problem
What is the problem that the character must face?

Action
What are the actions or the events that occur?

Resolution
Has the problem been solved?
If so, how?
If not, why?

Outcome
How does the story end?

1. Use your experience of playing *Brought to You by Ship* to complete the following chart.

<table>
<thead>
<tr>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who?</td>
</tr>
</tbody>
</table>
2. Circle the problem that you choose for your text:

<table>
<thead>
<tr>
<th>Storm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distress call from another ship</td>
</tr>
<tr>
<td>Mechanical breakdown</td>
</tr>
<tr>
<td>Ship stuck in ice</td>
</tr>
<tr>
<td>Ship attacked by pirates</td>
</tr>
<tr>
<td>Sick crew member</td>
</tr>
</tbody>
</table>

3. Fill in the following chart, which is devoted to the last three parts of a narrative text:

<table>
<thead>
<tr>
<th>Action</th>
<th>Resolution</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. Write your text.

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The types of ships

Writing a descriptive text

Some of the ships that can be observed on the St. Lawrence are: bulk carrier, tanker, container ship and tugboat. In this activity, you must do a document search about one of these ships and write a descriptive text on the subject.

The purpose of a descriptive text is to describe a phenomenon, place, object, etc. It has the following parts:

**Introduction**
- Get the reader’s attention
- Present the subject
- Present the elements that will be explored in the body of the text

**Body**
- Element 1
- Element 2
- Element 3

**Conclusion**
- Reminder of the essential elements of the text
- New information

1. Choose a ship and circle it.

   Bulk carrier
   Tanker
   Container ship
   Tugboat

2. Do a document search about the ship. Take notes on the outline on the next page.
Shipping has existed for a very long time. As such, it’s a perfect subject for using different verb tenses! Past, present or future, this activity will help you to review verb tenses and moods.

1. Use the verb form indicated (proper mood and tense).

**Present indicative**
I (make) __________ a list of all the advantages of shipping.

**Present conditional**
You (like) __________ to work as a sailor.

**Future perfect indicative**
In two months, he (finish) __________ his navigation officer training.

**Present perfect indicative**
We (go) __________ to visit the port.

**Simple past indicative**
You (come) __________ aboard the ship for the first time.

**Present conditional**
They (wear) __________ a safety helmet.

**Future progressive**
I (need) __________ your advice about buying a ship.

**Simple future indicative**
You (be) __________ a qualified sea captain!

**Present indicative**
She (say) __________ hello to her friends who come aboard.
Perfect conditional
By looking to that side, we (see) _________ the ship arrive.

Simple past indicative
You (be)__________ eager to sail away!

Present perfect indicative
They (eat)__________ the food prepared by the ship’s cook.
Angles

Berthing or putting out to sea, that is, docking in a port or leaving it, are two complex maneuvers. Ships often use tugboats to help. In this interactive activity, you will have to tell the tugboats the angles needed for them to be able to pivot the ship without endangering other vessels or port facilities.

An angle is a geometric figure formed by two rays converging on a common point. Angles are measured in degrees.

There are different types of angles, depending on their measurements:

- Acute angle: less than 90°
- Right angle: 90°
- Obtuse angle: between 90° and 180°
- Straight angle: 180°
- Full angle: 360°

To measure an angle, we use a protractor:
1. Do the interactive activity. Check off all the levels you complete successfully.

2. Using your protractor, draw the following three angles:

   - 90°
   - 25°
   - 155°
Cartesian plane

When a ship navigates at sea, it must avoid all of the obstacles on its course: rocks, icebergs, other vessels, etc. To locate these obstacles, the captain can use powerful satellites. In this activity, you will have to determine where on the Cartesian plane the icebergs are located so that your ship can reach its destination.

A Cartesian plane is a plane formed by two perpendicular axes, the $x$ axis (horizontal axis) and the $y$ axis (vertical axis). These two axes can be extended infinitely and are graduated. Each region of the Cartesian plane is called a quadrant.

We can locate a point on the Cartesian plane using a pair of coordinates: $(x, y)$. The first number indicates the point’s position on the $x$ axis and the second number indicates the point’s position on the $y$ axis. The coordinates of the point where the two axes meet, called the origin, are $(0, 0)$. 
1. Do the interactive activity. Check off all the levels you complete successfully.

2. On the Cartesian plane below, plot the following coordinates: (-5, 8); (3, -9); (4, 4); (-2, -6); (8, -1); (0, -3).
Let's go!

Time

2 hrs 52 min

The goods travelling on the St. Lawrence come from all around the world. Every day, ships from Europe, the United States, Asia and Oceania dock in different ports in Québec. Their journeys are very long: days and even weeks. In *Brought to You by Ship*, the journeys are much shorter. In this activity, you will use journey length to perform various calculations.

Time corresponds to the duration of a phenomenon. There are many units of time: century, decade, year, month, week, day, hour, minute, second...

To add or subtract hours, minutes and seconds, we must remember that:

\[
1 \text{ minute (min)} = 60 \text{ seconds (s)}
\]

\[
1 \text{ hour (hr)} = 60 \text{ minutes (min)}
\]

1. Write down the exact time right now. This is your ship’s departure time.

2. In *Brought to You by Ship*, open the order book. Write down the journey length for the first six orders in the chart on the next page.

3. Calculate the length of each journey in seconds, then write your answers in the chart on the next page.

4. Determine the ship’s arrival time, then write your answers in the chart on the next page.
### Journey

<table>
<thead>
<tr>
<th>Order</th>
<th>Journey length</th>
<th>Journey length in seconds</th>
<th>Ship’s arrival time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Calculation space:
**Exchanging Polo$ and Talent$**

Division

Talent$ are the official currency of the Game for Science virtual world. However, *Brought to You by Ship* has its own currency: the gold Polo$. This is the currency that allows you to manage your shipping company. Did you know that you can buy gold Polo$ with Talent$ to make your company get ahead faster? This activity gives you a chance to learn more about currency exchange.

Division is an operation that allows us to split an amount into a certain number of equal parts. The dividend is the number being divided. The divisor is the number used to divide, or the number of parts into which the dividend will be split. The quotient is the result of the division.

<table>
<thead>
<tr>
<th>Dividend</th>
<th>250</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Divisor</td>
<td></td>
</tr>
<tr>
<td>Quotient</td>
<td>25</td>
</tr>
</tbody>
</table>

1. In *Brought to You by Ship*, click on the number of gold Polo$ that you own. Write information about the purchase of gold Polo$ in the chart below.

**Purchase of gold Polo$**

<table>
<thead>
<tr>
<th>Number of gold Polo$</th>
<th>Cost in Talent$</th>
<th>Unit cost of each gold Polo$</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Coin" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image2.png" alt="Coin" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image3.png" alt="Coin" /></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. Calculate the unit cost of each gold Polo, i.e. the number of Talent$ needed to buy a gold Polo. Do the calculation for each row in the chart.

Calculation space:

3. What did you notice?

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Information about orders

Arithmetic means
Rounding numbers

In playing Brought to You by Ship, you used the logistics associated with transporting goods by ship: purchasing and storing goods and fuel, hiring crew members, ensuring journey profitability, etc. In this activity, you will use these values in working on arithmetic means and rounding numbers.

The arithmetic mean is the sum of all the values observed, divided by the number of values.

\[ \text{Mean} = \frac{\text{Sum of all the values}}{\text{Number of values}} \]

Rounding a number means replacing it by a value close to it. For example, to round a number to the nearest unit, we replace it by the nearest whole number:

- If the digit after the decimal point is lower than 5, we round down to the lower whole number;
- If the digit after the decimal point is higher than or equal to 5, we round up to the higher whole number.

1. In Brought to You by Ship, open the order book. For the first six orders, write the information below in the chart on the next page:
   - the number of gold Polo\(^5\) earned as a reward for successfully completing the delivery;
   - the number of litres of fuel needed for the journey.

2. Calculate the arithmetic mean of each column in the chart. If applicable, round to the nearest unit.
### Order information

<table>
<thead>
<tr>
<th>Order</th>
<th>Number of gold Polo$ earned as a reward</th>
<th>Number of litres of fuel needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Arithmetic mean</strong></td>
<td><strong>Arithmetic mean</strong></td>
</tr>
</tbody>
</table>

Calculation space:
Fractions (representing and reducing)

The container ships travelling on the St. Lawrence may have different capacities, i.e. they can transport different numbers of containers. Furthermore, the type of goods stored in those containers can vary: cereals, fruits and vegetables, electronic devices, etc. In this activity, you will use fractions to represent these values.

A fraction is a number that represents part of a whole or a set divided into equal parts. It is represented like this:

\[
\frac{\text{Numerator}}{\text{Denominator}} \rightarrow \frac{2}{3} \rightarrow \text{Fraction bar}
\]

The numerator indicates the number of equal parts being considered. The denominator indicates the number of equal parts that constitute the whole.

\[
\frac{2}{3} \quad \text{of a whole} \quad \quad \quad \frac{2}{3} \quad \text{of a set}
\]

An irreducible fraction, i.e. a fraction reduced to lowest terms, is a fraction whose numerator and denominator can no longer be divided by the same divisor. The first fraction given as an example above is an irreducible fraction.

1. Log on to Brought to You by Ship and determine the total number of sets of containers that can be loaded on a ship.
2. Here are various orders for sets of containers to load on a ship. What fraction of the total number of containers that can be loaded does each represent?

a)  

b)  

2. Here are various orders for sets of containers to load on a ship. What fraction represents the number of sets of containers of electronic devices? Complete the representation of that fraction.

a)  

b)
3. Here are various orders for sets of containers to load on a ship. What fraction represents the number of each set of containers? Where possible, reduce the fractions.

a)

<table>
<thead>
<tr>
<th>Fraction</th>
<th>Reduced fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/9</td>
<td></td>
</tr>
</tbody>
</table>

b)

<table>
<thead>
<tr>
<th>Fraction</th>
<th>Reduced fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/9</td>
<td></td>
</tr>
<tr>
<td>8/9</td>
<td></td>
</tr>
<tr>
<td>8/8</td>
<td></td>
</tr>
</tbody>
</table>
Permeability and impermeability

When you played *Brought to You by Ship*, you used your container ship and bulk carrier to make a number of deliveries. The choice of materials that make up ships and port equipment is essential for the proper functioning of the marine industry.

Each material has its own specific characteristics or properties. The following are examples of properties:

- Density;
- Buoyancy;
- Solubility;
- Permeability;
- Impermeability;
- Etc.

1. Draw a line from each property to its definition.

   - Property of a substance that doesn’t allow liquids to pass through it.
   - Permeability
   - Impermeability

2. In each circle, write P for permeable and I for impermeable.

   - Sponge
   - Metal
   - Winter boot
   - Umbrella
   - Paper towel
   - Plastic
   - Wool
   - Glass
   - Raincoat
3. Do you think the hull of a ship like those found in *Brought to You by Ship* is permeable or impermeable? Explain your answer.

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4. The cargo containers in *Brought to You by Ship* are impermeable. What do you think would happen if they weren’t? Explain your answer.

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Solubility and buoyancy

The *Brought to You by Ship* port has three terminals containing bulk goods. Those goods have well-defined characteristics. Their transportation is provided by bulk carriers.

Each material has its own specific characteristics or properties. The following are examples of properties:

- Density;
- Buoyancy;
- Solubility;
- Permeability;
- Impermeability;
- Etc.

1. Draw a line from each property to its definition.

The buoyancy of a substance depends on its density, i.e. the weight of one cubic centimetre of the substance.

The density of water is 1 g/cm³. If a substance has a lower density than water, it will float on water. If a substance has a higher density than water, it will sink in water.
2. In *Brought to You by Ship*, locate the three bulk terminals and write down the goods that are stored in them.

![Bulk Terminals](image)

3. One of these three substances is soluble in water. Which one?

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4. Explain how you could verify your answer to Question 3.

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5. The following boxes indicate the density of certain substances. Complete the two boxes with the names of two of the substances you wrote down for Question 2.

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<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.9 g/cm³</td>
<td>Cork</td>
<td>Olive oil</td>
<td>1.1 g/cm³</td>
</tr>
<tr>
<td>0.23 g/cm³</td>
<td>0.92 g/cm³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. In the pool of water below, indicate which substances from Question 5 will float and which will sink.

![Diagram showing substances in a pool of water]

7. Container ships and bulk carriers float on water. What can you conclude about the average density of those ships?

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**Essential fuel!**

**Sources of energy**

A ship can cover a distance of more than 300 kilometres on one litre of fuel to transport one ton of goods. This fuel consumption is very environment-friendly if we compare it to that of other means of transportation (train, truck).

People can use various sources of energy to meet their energy needs (transportation, heating, etc.). The following are some sources of energy:

- Sun (solar energy);
- Moving water (hydraulic energy);
- Wind (wind energy);
- Fossil fuels (fossil energy).

Energy sources can be renewable (they cannot be used up) or non-renewable (they can be used up).

1. In *Brought to You by Ship*, find the fuel symbol and draw it in the circle below.

2. What type of fuel do you think is used in container ships and bulk carriers?

______________________________________________________________________________  
______________________________________________________________________________
3. From what energy source is that fuel derived?

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4. Explain how that fuel is formed.

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5. Is it a renewable or non-renewable source of energy? Explain your answer.

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Climate-related natural phenomena

In playing Brought to You by Ship, you probably noticed that ships can be forced to stop for various reasons, including climate-related natural phenomena. In this activity, you will learn more about these phenomena.

A number of natural phenomena are climate-related:

- **Lightning**: electrical discharge in a storm cloud (cumulonimbus), between two clouds or between a storm cloud and the ground.
- **Tornado**: vortex of violent and unpredictable winds, which occurs in warm, humid weather and which forms beneath a storm cloud.
- **Hurricane**: tropical storm (storm clouds in rotation with violent winds) that develops over warm seas.

1. Log on to Brought to You by Ship and make three deliveries to Gourmania Island. Write down the incidents that can force your ship to stop.

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2. Of the incidents you wrote down in Question 1, circle those that are related to a natural phenomenon, if any.
3. Here are pictures of three natural phenomena. Name each phenomenon.

![Tornado](image1.png)  ![Hurricane](image2.png)  ![Lightning](image3.png)

Name: _________________________________

4. What does the formation of those three climate-related natural phenomena have in common?

______________________________________________________________________________
______________________________________________________________________________

5. Which of these phenomena do you think could force a ship to stop?

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5. Is Québec a suitable place for the development of hurricanes? Explain your answer.

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Tides

When a ship travels on a waterway or in a bay, or when it wants to dock in a port, it requires an adequate water level. In this activity, you will learn more about tides.

Tide is the phenomenon by which sea levels rise and fall, due to the gravitational attraction of the Moon and Sun.

The Moon and Sun attract the oceans. Since the Moon is closer to the Earth than the Sun, its attraction is stronger. But the Sun also plays a role in the phenomenon of tides. The position of the Moon, Earth and Sun determines if tides are high or not.

If the Moon, Earth and Sun are aligned:
- Combined attraction of the Moon and Sun;
- High tides;
- Name: spring tides.

If the Moon, Earth and Sun form a 90° angle:
- Uncombined attraction of the Moon and Sun;
- Low tides;
- Name: neap tides.

1. In the diagram below, indicate the positions of the Moon, Earth and Sun.
2. Does the diagram from Question 1 illustrate a spring tide or a neap tide? Explain your answer.
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

3. Connect the diagrams to the type of tides to which they correspond.

- Spring tide
- Neap tide
4. A ship bound for the port of Gourmania consults the island’s tide table.

<table>
<thead>
<tr>
<th>Time</th>
<th>Water height (metre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:14 a.m.</td>
<td>2.8</td>
</tr>
<tr>
<td>6:15 a.m.</td>
<td>0.8</td>
</tr>
<tr>
<td>12:29 p.m.</td>
<td>3.1</td>
</tr>
<tr>
<td>6:47 p.m.</td>
<td>0.7</td>
</tr>
</tbody>
</table>

a) At what times do low tides (lowest water level) occur?

______________________________________________________________________________

b) At what times do high tides (highest water level) occur?

______________________________________________________________________________

c) Is it better if the ship approaches the port of Gourmania at high tide or at low tide? Explain your answer.

______________________________________________________________________________
A WATERWAY

Techniques specific to Geography

To travel from one location to another, ships must use well-established waterways or navigation channel. In Brought to You by Ship, several waterways connect the different Game for science islands. In Québec, the port network consists of about 20 ports, most of which are located on the St. Lawrence River (excluding the remote ports).

The map on the next page shows the St. Lawrence’s hydrographic system. The main ports in Québec are shown using white circles. They are (in alphabetical order):

- Baie-Comeau
- Bécancour
- Chandler
- Gaspé
- Gros-Cacouna
- Havre-St-Pierre
- Matane
- Montréal
- Pointe-au-Pic
- Port-Alfred
- Port-Cartier
- Port-Saguenay
- Québec City
- Rimouski
- Sept-Îles
- Sorel-Tracy
- Trois-Rivières
- Valleyfield

1. Give the map a title.
2. Circle the map scale.
3. Cut out each strip, then paste it in the right place on the map.

![Map of St. Lawrence River and Gulf of St. Lawrence]

4. Next to the white circles, write down the name of the ports you know.
Since the first French settlers arrived in North America, shipping has changed a lot, as you will see in doing this activity.

1. Connect each type of ship to one of the points on the time line.

<table>
<thead>
<tr>
<th>Ship transporting furs, New France’s main trading commodity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ship transporting electronic devices</td>
</tr>
<tr>
<td>Ship transporting Loyalists to Lower Canada</td>
</tr>
<tr>
<td>Jacques Cartier’s ship <em>La Petite Hermine</em></td>
</tr>
<tr>
<td>First steamboat</td>
</tr>
<tr>
<td>English ship that took part in the Seven Years’ War</td>
</tr>
<tr>
<td>Bulk carriers / Container ships</td>
</tr>
<tr>
<td>Ship transporting wood and wheat, Lower Canada’s main trading commodities</td>
</tr>
</tbody>
</table>
2. Indicate if the following statements are true or false.

In New France, the St. Lawrence River was the key transportation route.  

Today, in Québec, the St. Lawrence River is the key transportation route.
The St. Lawrence River is Québec’s key transportation route. To facilitate trade, changes had to be made over time. This activity will allow you to learn more about this.

1. Complete the following time line by:
   - identifying the century that each period corresponds to;
   - completing the two boxes with the right solution;
   - connecting each box to the right place on the time line.

   **Need:** Facilitating trade between Upper Canada and Lower Canada via the St. Lawrence River.
   **Problem:** 14-metre drop between Montréal and Lachine; presence of rapids.
   **Solution:** Composition: 7 locks.

   **Need:** Allowing ships to reach the Great Lakes.
   **Problem:** To reach the Great Lakes, ships must use different lock systems, including some that are too narrow for the bigger ships.
   **Solution:** Composition: 15 locks in 5 short canals.
Mathematics situational problem

Marty, the superstore manager, has just placed an order for computers with one of his suppliers. For the delivery, he sees that various transport options are available: truck, train, ship or plane. He asks you for help to determine an eco-friendly delivery plan at the lowest possible cost.

These are the constraints to take into account in your delivery plan:

- The number of computers to be delivered is 330 000.
- Total fuel consumption must not exceed 100 000 liters.
- The maximum budget allocated for fuel is $80 000.00.
- The total amount of CO$_2$ (a pollutant responsible for global warming) must not exceed 5000 kg.

Here are the details for the different options:

<table>
<thead>
<tr>
<th></th>
<th>Truck</th>
<th>Train</th>
<th>Ship</th>
<th>Plane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trip length:</td>
<td>653 km</td>
<td>436 km</td>
<td>798 km</td>
<td>358 km</td>
</tr>
<tr>
<td>Number of computers carried by one:</td>
<td>755</td>
<td>14 650</td>
<td>162 750</td>
<td>27 500</td>
</tr>
<tr>
<td>Fuel consumption:</td>
<td>35 L per 100 km</td>
<td>870 L per 100 km</td>
<td>5000 L per 100 km</td>
<td>2700 L per 100 km</td>
</tr>
<tr>
<td>Fuel cost:</td>
<td>$0.70/L</td>
<td>$0.70/L</td>
<td>$0.70/L</td>
<td>$0.70/L</td>
</tr>
<tr>
<td>CO$_2$ emissions:</td>
<td>0.11 kg/km</td>
<td>0.72 kg/km</td>
<td>0.87 kg/km</td>
<td>4.52 kg/km</td>
</tr>
</tbody>
</table>
Possible routes:

Which option would you suggest to Marty? Of the budget allocated, how much money will be left over?

1. Highlight all of the important information in the problem.

2. Re-state the problem in your own words.

______________________________________________________________________________
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______________________________________________________________________________
______________________________________________________________________________

3. Use the calculation space below to show how you arrived at your solution.

Calculation space:
4. Complete the delivery plan.

<table>
<thead>
<tr>
<th>Transportation mode chosen</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of trucks, trains, ships or planes needed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of kilometers travelled by the vehicles as a whole</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total amount of fuel used by the vehicles as a whole</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total fuel cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total CO₂ emitted during the delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amount remaining in the budget allocated for fuel: ________________________________

Explain why the solution you are proposing is eco-friendly.

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______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________