5 What is Shipbuilding?

Marine Month IN CANADA

Shipbuilding Worksheet

Follow the instructions below and design your ship!

1. **Vessel type:** Do you want to build a cargo ship, a tugboat, a passenger vessel, or some other type of watercraft? What is the purpose of your ship? Does it have any special features or functions?

2. **Materials Exploration:** Review the advantages and disadvantages of the following materials commonly used in shipbuilding. Which material would be most suitable for your ship design?

Material	Advantages	Disadvantages
Steel	• High strength and durability, suitable for large ships and heavy loads • Resistant to impact and harsh weather conditions • Relatively affordable compared to some other materials	• Requires regular maintenance to prevent corrosion • Heavier than other materials, which may affect fuel efficiency • Welding and fabrication can be complex
Aluminum alloy	• Lightweight, which improves fuel efficiency and speed • Resistant to corrosion, particularly in seawater • Easier to work with, making construction and repairs faster	• Higher initial cost compared to steel • Not as strong as steel, limiting its use for very large or heavy ships • Requires special handling to prevent galvanic corrosion when in contact with other metals
Fibre-Reinforced Plastic (FRP)	• High strength and excellent resistance to corrosion • Lightweight and can be molded into complex shapes • Requires less maintenance than metal materials	• Susceptible to UV sunlight degradation without proper protection • Repairing FRP can be challenging and may require specialized techniques
Polyethylene	• Lightweight and buoyant, making it ideal for certain watercraft • Resistant to corrosion and chemicals • Low maintenance and doesn't require painting	• Not as strong as other materials, limiting its use for larger ships or vessels in rough conditions • Vulnerable to UV sunlight degradation, which can affect longevity if not protected

3. **Ship design:** Use the backside of this worksheet to draw and label your ship design. Consider its size, shape, materials, and features.