



Smithsonian

Protecting a Sinking City



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A City of Water

Imagine a city of islands. Friends wave across the water to each other. There are no cars and no streets. People walk or take boats. Houses do not have green yards. Instead, front doors open to a **canal**.

This is Venice (VEN-is), Italy. It may sound like a fake city, but it is real. Once, Venice was one of the most powerful cities in the world. Now, it is fighting to survive.





Venice, Italy,
from above

The symbol of Venice is a lion with wings. It is called the Lion of St. Mark.

Escape to the Lagoon

Venice is in a **lagoon** (luh-GOON). A lagoon is an area of shallow water separated from a larger body of water. In Venice, a thin area of land makes a natural wall. This land forms the lagoon and keeps the sea from sweeping in.

For a long time, few people lived in Venice. They had a hard life. The water in the lagoon is salty, so safe drinking water was hard to find. In the summer, bugs filled the air.

Then, armies invaded an area near Venice. People fled that area. Some came to the lagoon. It became a safe place.

This photo of Venice was taken from space.

Adriatic Sea



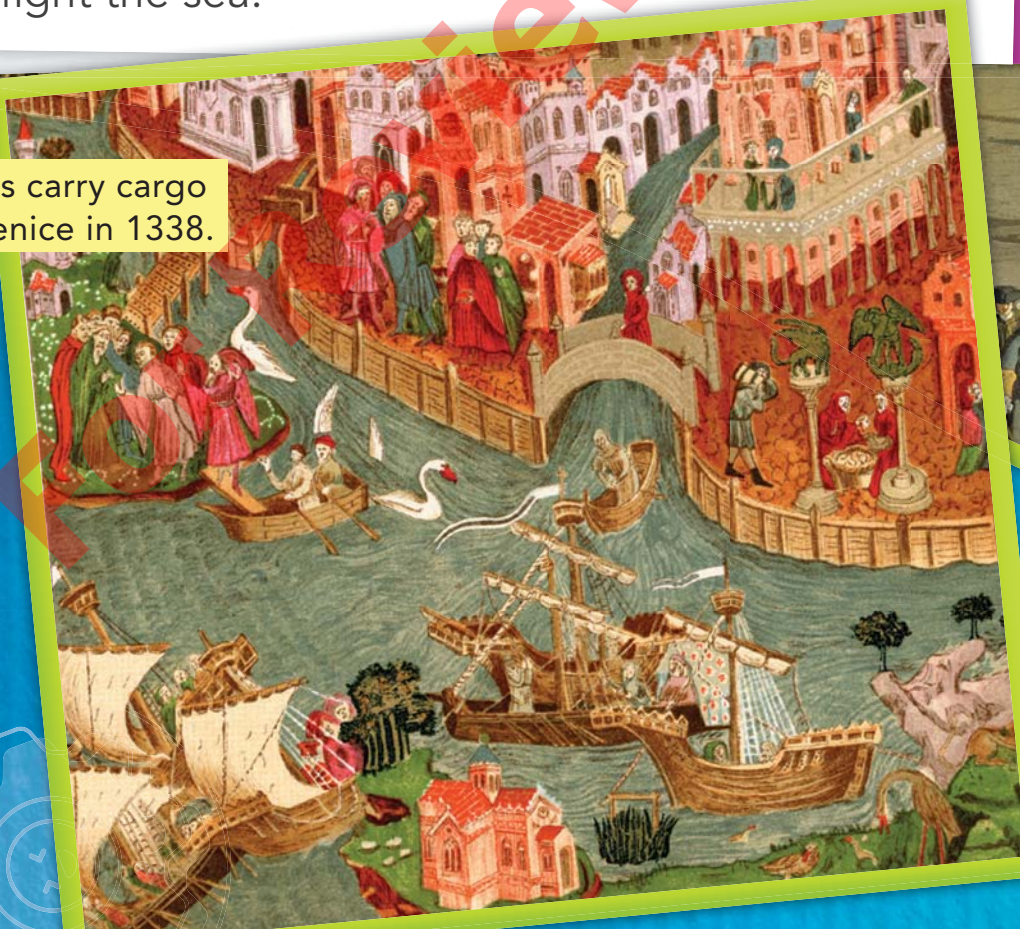


The islands in the lagoon were wet and swampy. Building with heavy stones would be a bad idea. The weight of the stones would cause the buildings to sink into the wet ground.

Over the years, people learned how to live in Venice. Many people became traders. They bought and sold things. Ships sailed to and from the city. The **cargo** on the ships made people in Venice rich.

The city grew quickly. But it was still a city built on water. People in Venice have always had to fight the sea.

Ships carry cargo in Venice in 1338.





This painting from the 1740s shows traders in Saint Mark's Square in Venice.

Venice used to be its own country. People have lived in the area since around AD 568.



STEAM CHALLENGE

Define the Problem

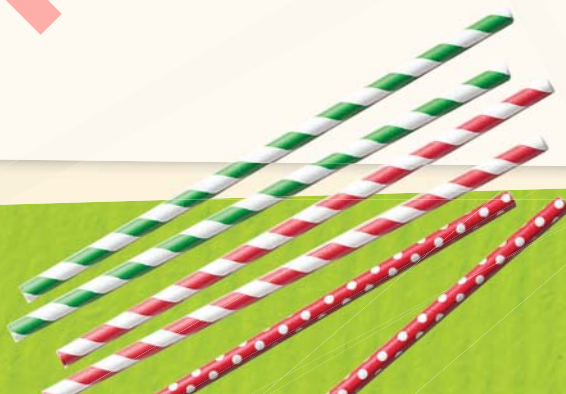
Many stilt houses in Venice are in trouble. You have been asked to design and build a model for a new type of house. Your house should sit above the water. It should keep people safe from flooding.



Constraints: Your house must be at least 25 centimeters (10 inches) tall.



Criteria: Your house must stay upright on its own. Your house must stay dry when placed in 8 cm (3 in.) of water.





Research and Brainstorm

How do houses in Venice stand in water?
How are engineers trying to save Venice?
What makes houses in Venice so sturdy?



Design and Build

Sketch your design of your house. What purpose will each part serve? What materials will work best? Build the model.



Test and Improve

Measure your house. Is it at least 25 cm (10 in.) tall? Place your model in 8 cm (3 in.) of water. Is your house above the water? Is it sturdy? How can you improve it? Improve your design and try again.



Reflect and Share

What other materials could you use? How would your design change if the water was moving? How could you add technology to your house to warn homeowners of flooding?