

Energy: Understandings of the physical world are deepened by investigating matter and energy

Kindergarten: Children explore movement of objects, humans, and other animals

Grade 1: Investigate direction, pathway, and speed of moving humans and animals

Grade 2: Students investigate the behaviours of light and sound

Grade 3: Students investigate and explain how forces affect the movement of objects

Grade 4: Students investigate how forces can act on objects without contact

Grade 5: Students investigate and compare how forces can affect living things and objects in water and air

Grade 5 Science

Energy - How do forces affect living things and objects in water or air?



Knowledge/Understandings/Skills and Procedures

Thrust and drag are opposing forces.

Lift and weight are opposing forces.

Thrust is a force that can act in the direction of movement.

Drag is a force that can act in opposition to the direction of movement.

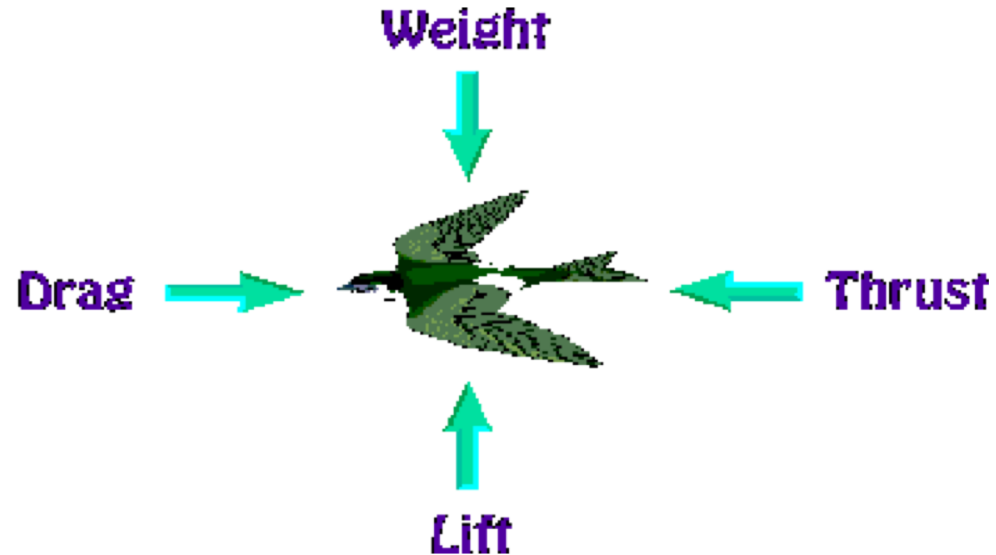
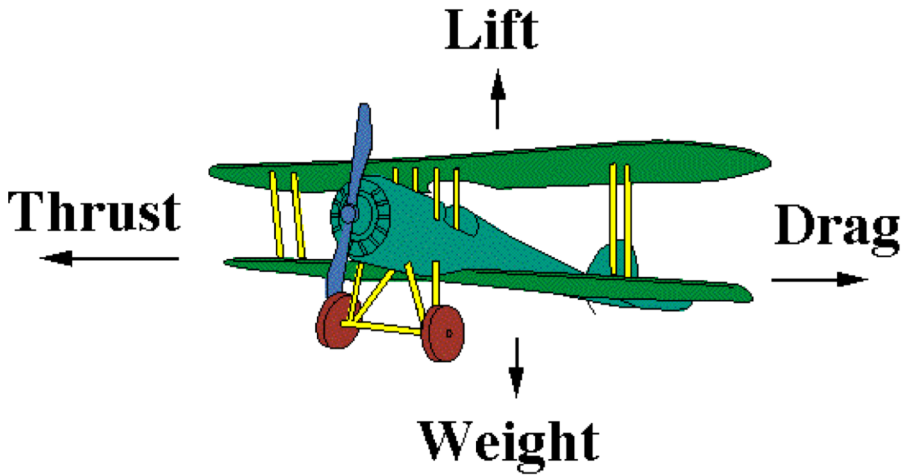
Lift is an upward force that acts to overcome the weight of a living thing or object and hold it in the air.

Weight is a force caused by gravity that acts on a living thing or object in a downward direction.

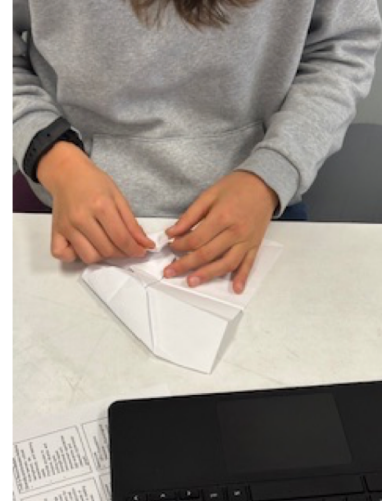
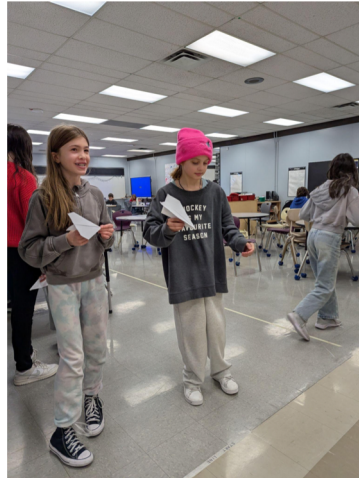
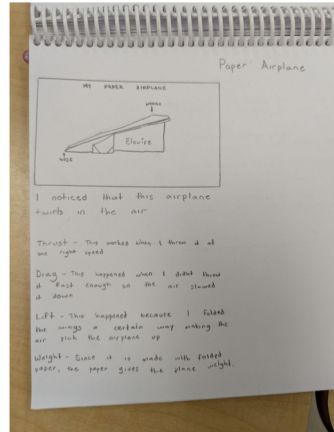
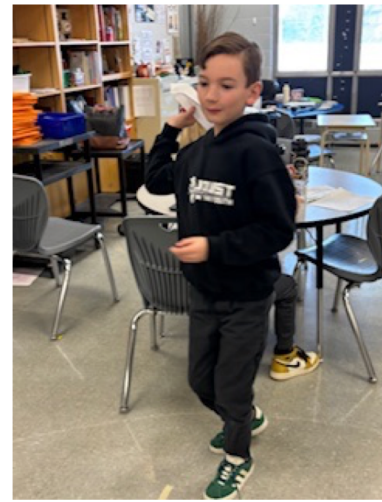
Forces can affect the flight of living things and objects in various ways, including

- speed
- horizontal and vertical movement
- altitude
- straight and level flight

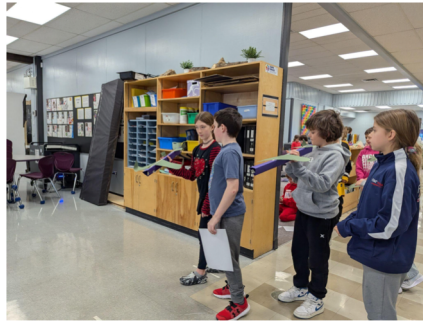
We explored The 4 Forces of Flight - Thrust, Drag, Weight, and Lift on Living Things and Objects



Investigations - Paper Airplanes



Makerspace Challenge - Gliders



Traditional Tools - Indigenous Connection

Traditional technologies developed by diverse cultures that reflect understanding of forces that affect flight include the

- bow and arrow
- slingshot
- fishing spear

Describe traditional or modern technologies developed by diverse cultures that reflect understanding of forces that affect flight.

Students investigated and shared one traditional tool.

Fishing spears

Click to add text

Fishing spears are made out of stingray spines, fish teeth or hardwood

Fishing spears were made for surviving and catching fish in a rapid rivers safely.



The Inuit have used fishing spears for more than 10 million years which shows bravery and expansion

If you were to make a fishing spear you would most likely use carbon steel

The bow & arrow

Bows allow people to shoot arrows further and with greater power.

There are many archery events. Most is where archers shoot arrows to the round target and get more points if you hit the center of the target and if you hit the outer ring you get less points.



In ancient times people in Europe, Asia, Africa, and the Americas made the bow and arrows.

Bows and arrows were used for war and hunting.

Slingshots

History

One of the earliest uses of slingshots was by an ancient Egyptian.

What They Were Used For

People used slingshots for hunting and protecting.

Made by Emily



What They Were Made Of

People made first slingshots out of forked branches that were in shapes of Y's. They needed something stretchy so they used inner tubes or good vulcanized rubber and to hit with they used small stones.

Fun Fact

Slingshots were used by indigenous kids because they believed that everyone should help out.

Atlatl



The atlatl is a carved wooden board up to 1m, with a hook on one end that inserts into a divot at the end of a dart shaft (about 1m in length).

The hunter throws the dart in a motion similar to a baseball pitch. A flick of the wrist at the end of the throw increases the speed and power. Is the use of an atlatl better than throwing a spear? The world record for a hand-thrown javelin is 104m while the record for an atlatl thrown - dart is 258m!!



How did people kill animals before guns and the bow and arrow? One of the oldest weapons in Alberta is called an atlatl or a dart thrower. The atlatl increased in popularity around 8,000 years ago and was the trusted technology for roughly 300 consecutive generations of hunters. It was replaced by the bow and arrow around 2,000 years ago.

Archaeologists think that the atlatl replaced the spear because of the safety that it offered (people could launch a dart as opposed to running up to animals to spear them), but the small part of darts held other advantages over the chunky gear of spears. Darts were not only easier to transport but they penetrated hides with greater force, which likely killed animals quicker. In Alberta, darts were used to hunt bison, sheep, elk, deer, antelope, and smaller animals. Each species likely involved a different strategy and context of atlatl use.

Field Trip Opportunity - Hangar Flight Museum

Theory of Flight Program



Field Trip Opportunity - Hangar Flight Museum

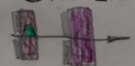
Glider Test Pilot Program



Reflections

HANGER FLIGHT MUSEUM

January 30th
2025

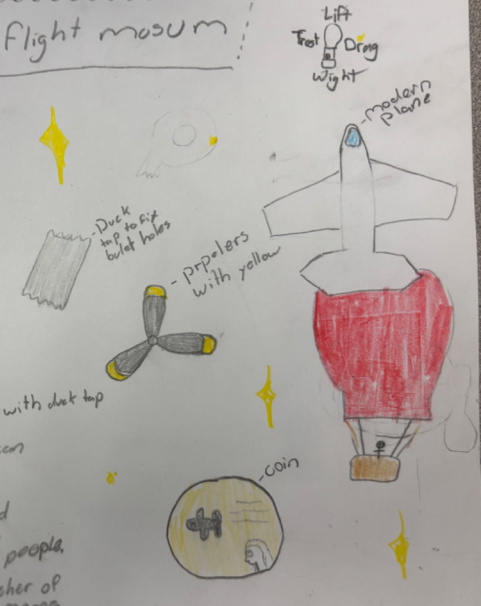
I learn that during world war 2 the air force ran out of planes because they were destroyed in the war they needed more planes so a lot of engineers went to school to build them and only one was a woman every day she was bullied and they said should you be at home doing the chores she got her degree and was the first woman to be an enginer she was famous when she died she even got a coin in the world left that she made and one of them is in edmonton and one at the hanger flight museum	The wright brothers are famous because they were the first to invent the plane it was hard because they didn't have a model to copy but they still managed to build it it was easier to make a plane because of Bernoulli's principle Training planes were yellow because if they were in war and they need more pilots but they didn't have a lot of train they wouldn't think that they were in war because the army and air force colors are green and brown so that why some planes at the hanger flight museum are yellow instead of green or brown	The Four Forces of Flight are - Lift - Thrust - Weight - Drag Freddie meall was in the army then move to the air force he was a great pilot one that was a four and a war hero if he could take his kids for a ride so he did and the engine stopped and he was right above the tail and Freddie landed on a merry go ride and
		GLIDERS 

Hanger Flight museum

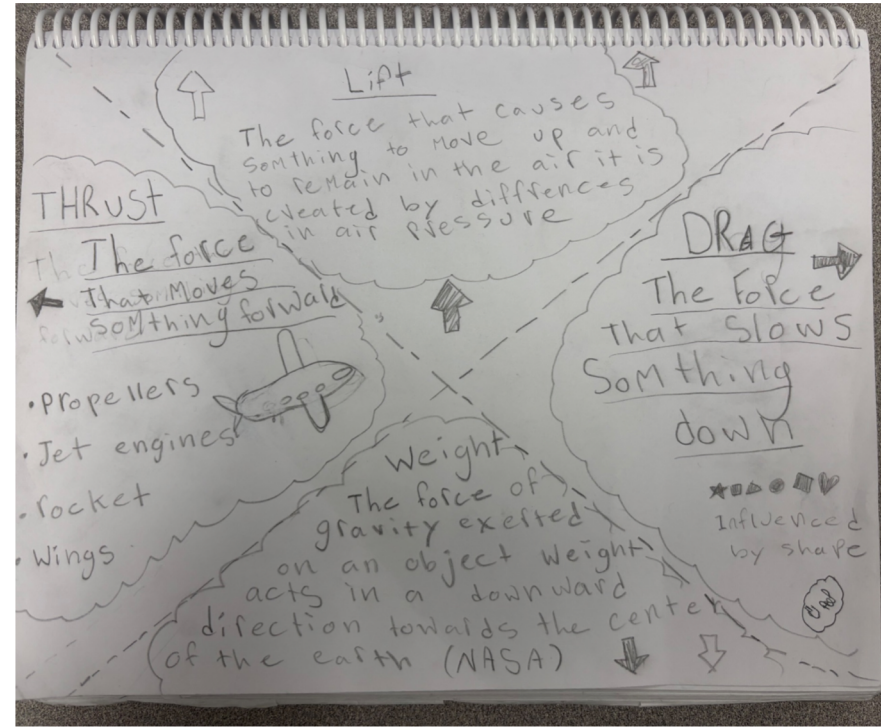
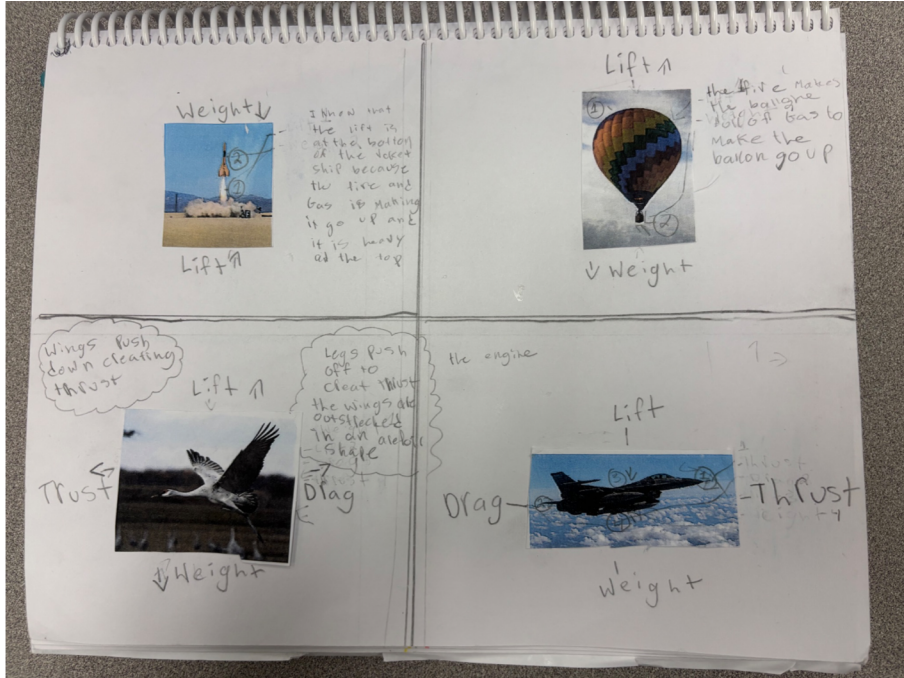
At the hanger flight museum they have a plane that goes faster than the speed of sound. The plane has a tunnel going through it and then an engine at the very back. Also planes with propellers have yellow on the propellers that is so people can see them and don't walk right in to the propellers.

There is also a plane it is made out of foam it is a good plane because once the plane has lots of bullet holes you can use duck tape to fix it with duck tape.

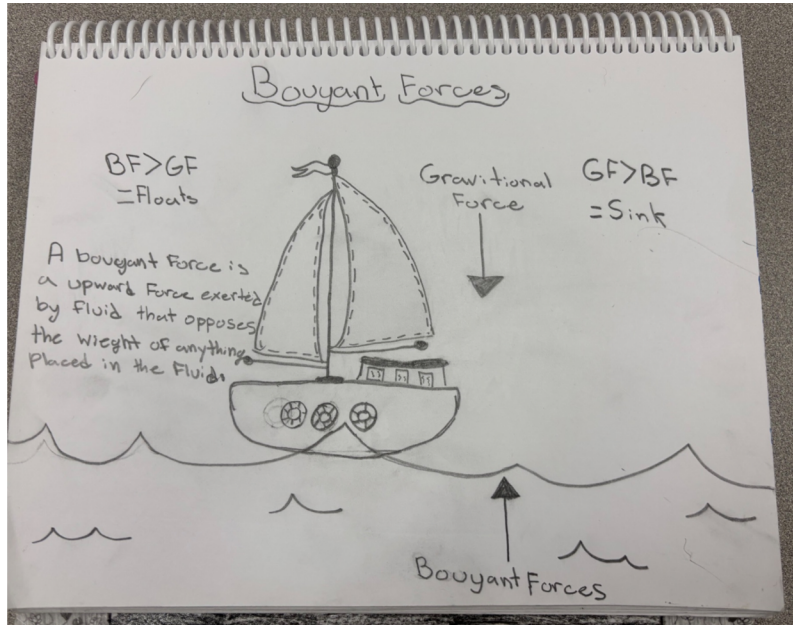
Also the plane is very light so it can move quick and easy. There is a black plane and it was used for the war they made 17 thousand and now there are only 17 left there is one person in the back who shoots people. There is a coin and it has a picture of the first girl enginer I forgot her name. The coin has the plane she made and a picture of her.



Representing Our Learning

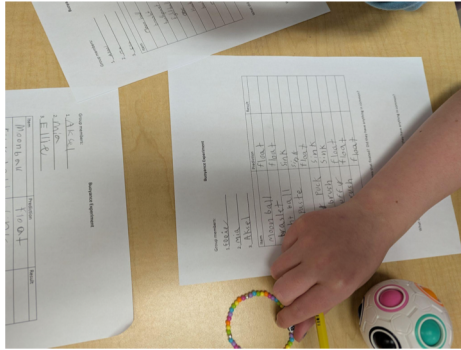


Buoyancy



Buoyancy

Photos of students testing items and recording sheet



What's Next?

Next in Science, we will investigate into renewable and non-renewable energy sources which also falls under our main organizing idea of energy.

Renewable and Non-Renewable Energy Sources

