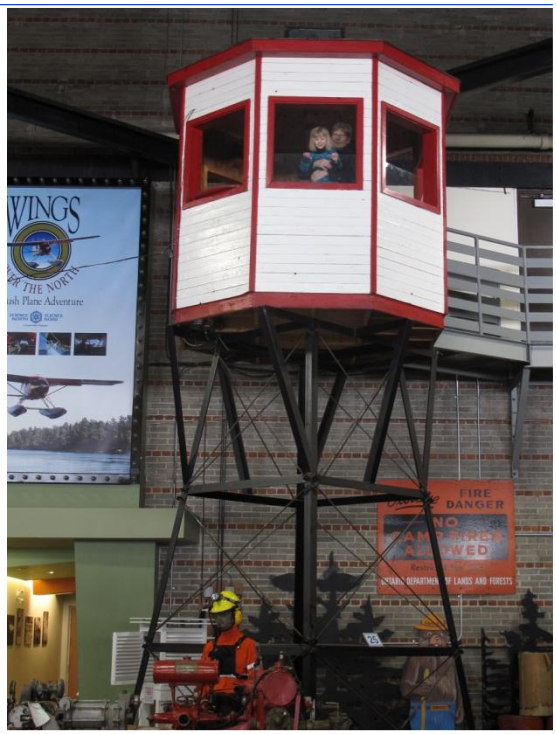
CANADIAN BUSHPLANE HERITAGE CENTRE

CBHC Grade Two Aviation Program



INTRODUCTION

At the Canadian Bushplane Heritage Centre we are passionate about our Northern Ontario heritage. We are also very excited about educating the public on our many historical aircraft exhibits as well as forests and forest firefighting exhibits. Our Education Program will allow you to engage your students and give them a personalized, relevant and exciting new take on the curriculum.

Our program is developed with teachers in mind and will allow you to build on curriculum expectations before and after the tour that all tie into the materials presented in the tour. We would love to partner with you to allow your students to discover and learn about their Northern Ontario heritage and the exciting life as a bushplane pilot or forest fire fighter. Our tour guides are retired educators, MNR workers and/or pilots who love working with kids and students. Our experts make the experience one you and your students will never forget!

Our Grade Two Tour Program focuses on the structures and mechanisms of a bushplane and the forces acting upon them. Students will have a chance to climb inside, play, touch and even "fly" with their classmates in an old Saunders passenger aircraft. Students will also discover how bushplanes help fight forest fires and will get a chance to climb a fire tower to put out a forest fire on their own. We will ignite your student's imaginations and interest. Your class will learn quickly that adventure takes off at the Canadian Bushplane Heritage Centre!

For more information and preparation lessons please visit us at:
www.bushplane.com/education/lessons/gradetwo

You may also speak to someone for more information or to book your school tour at
Toll Free: 1-877-287-4752
Local: 705-945-6242

OVERVIEW OF CURRICULUM EXPECTATIONS

The following is a list of expectations from the grade two curriculum that will be met by following the Canadian Bushplane Heritage Centre Grade Two Tour Program.

Big Idea: Measurement	
Overall Expectation: Estimate, measure and record length, perimeter, area, mass, capacity, time and temperature, using non-standard units and standard units.	**How:**
Compare, describe and order objects, using attributes measured in non-standard units and standard units.	Students will be asked to measure wing span of an aircraft through estimation, using nonstandard units of measure (large steps) and with a meter stick.
Specific Expectation: Choose benchmarks – in this case, personal references – for a centimeter and a meter to help them perform measurement tasks.	Students will be asked to record measurements they take and then through an in class assignment they are able to represent the information they gathered in their own graphs.
Estimate and measure length, height and distance, using standard units (i.e., centimeter, meter) and non-standard units.	Students will discuss why they will be using a meter stick as a measuring tool and not centimeters or kilometers etc.
Record and represent measurements of length, height and distance in a variety of ways.	
Select and justify the choice of a standard unit (i.e., centimeter or meter) or a nonstandard unit to measure length.	

Big Idea:
Geometry & Spatial Sense

Overall Expectation:
Identify two-dimensional shapes and three-dimensional figures and sort and classify them by their geometric properties.

Compose and decompose two-dimensional shapes and three-dimensional figures.

Describe and represent the relative locations of objects and represent objects on a map.

Specific Expectation:
Distinguish between the attributes of an object that are geometric properties and the attributes that are not geometric properties using a variety of tools.

Locate the line of symmetry in a two dimensional shape.

Compose and describe pictures, designs and patterns by combining two-dimensional shapes.

Compose and decompose two-dimensional shapes.

Build a structure using three-dimensional figures and describe the two-dimensional shapes and three-dimensional figures in the structure.

Describe the relative locations and the movements of objects on a map.

Create and describe symmetrical designs using a variety of tools.

How:

Students will look at symmetry of an aircraft and this will aid them in the measurement of the aircraft by only having to measure from the tip of the wing to the nose of the aircraft.

Students will be investigating the shapes that exist in a two dimensional aircraft and describe the shapes that exist.

Students can use power polygons to create an aircraft-shaped image, using symmetry.

Big Idea:
Data Management and Probability

Overall Expectation:
Collect and organize categorical or discrete primary data and display the data, using tally charts, concrete graphs, pictographs, line plots, simple bar graphs and other graphic organizers, with labels ordered appropriately along horizontal axes, as needed.

Read and describe primary data presented in tally charts, concrete graphs, pictographs, line plots, simple bar graphs and other graphic organizers.

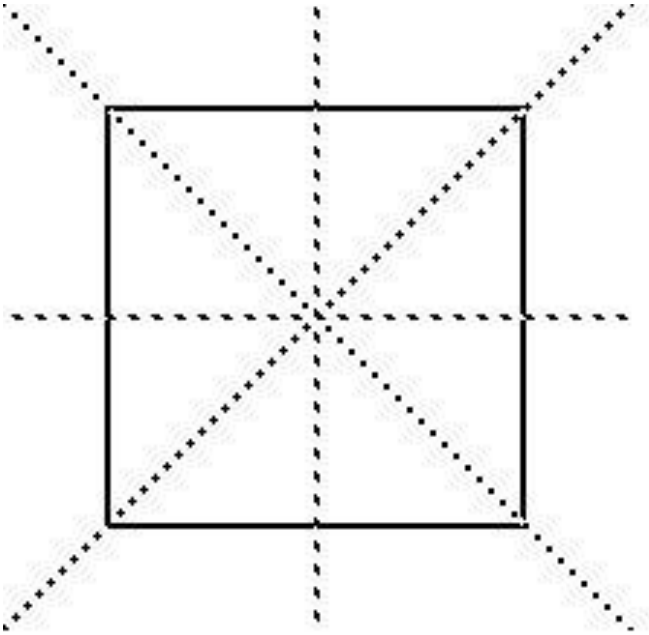
Specific Expectation:
Gather data to answer a question using a simple survey with a limited number of responses.

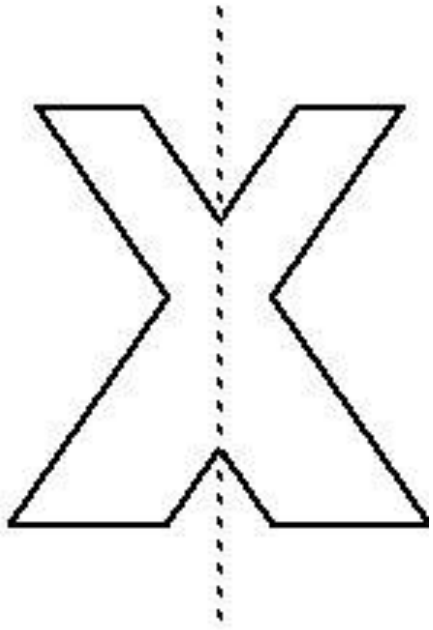
Collect and organize primary data that is categorical or discrete and display the data using one-to-one correspondence in concrete graphs, pictographs, line plots, simple bar graphs and other graphic organizers with appropriate titles and labels and with labels ordered appropriately along horizontal axes, as needed.

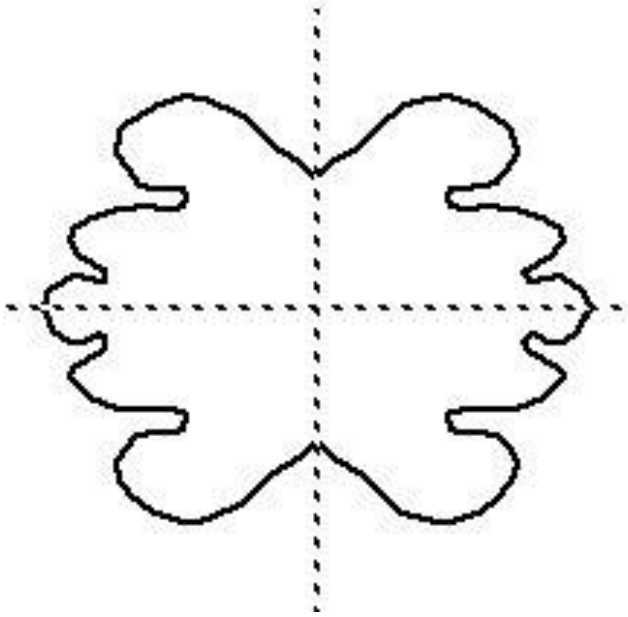
How:

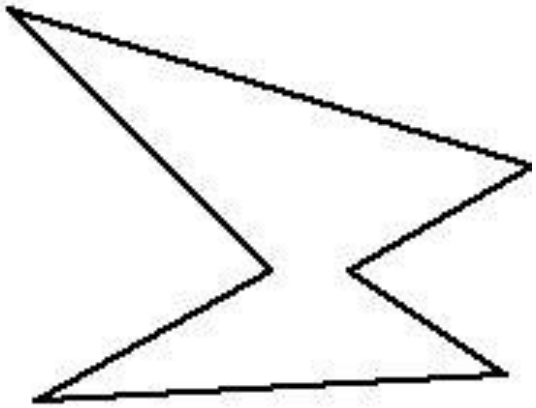
During tour students will investigate which aircraft is the largest of the four aircraft by measuring in groups which aircraft has the longest wing span. In class exercises will look at those results and see how that information can be displayed on a pictograph.

Shape Symmetry Diagram

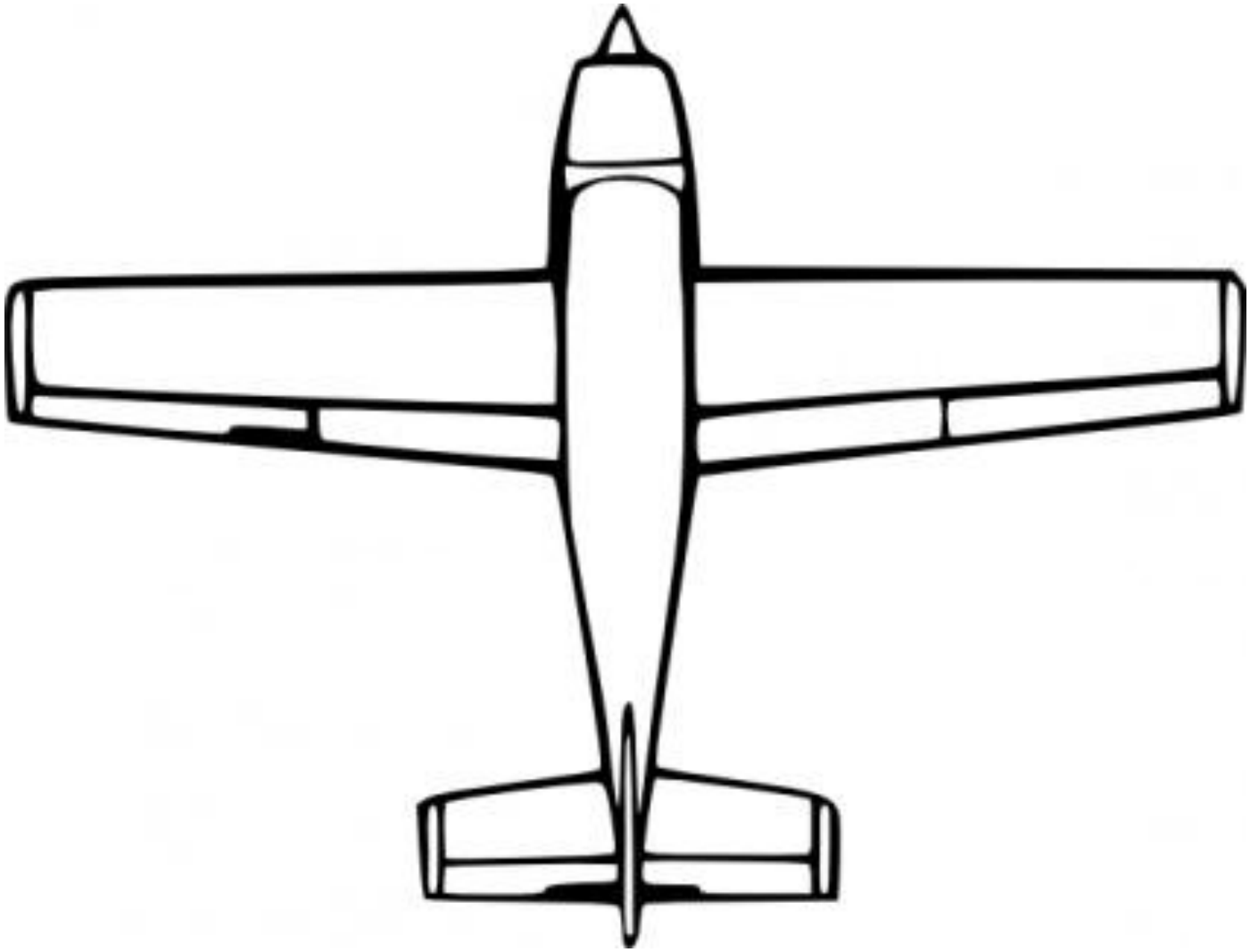








Aircraft Shapes Diagram



GRADE TWO LESSONS

Associated lessons are encouraged before and after the field trip. Many students may not have been to a museum and it is helpful to establish the rules of a the Canadian Bushplane Heritage Centre as well as get them excited to come and experience all the fun adventures they are about to have. The following activities are all optional; our tours are developed to be stand-alone and pre or post lessons are not required to experience a field trip at the Canadian Bushplane Heritage Centre.

You can use one lesson or a combination of lessons to aid your students in their experience. All the resources for the activities are supplied and most of the suggested books may be lent out through our own library for up to one week. Some books are also noted to be in the Public Library for teachers to take out for longer periods of time.

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Lesson 1

Students Will Discover:

- What is a museum,
- What types of museums there are
- How to act and behave in a museum
- Discuss the field trip to the Canadian Bushplane Heritage Centre with the students
- What types of questions do we want to ask on our trip to the field trip

Materials:

- Children's Book on museums (see suggested reading).

Circle Time:

- Ask the students what they know about museums. Have they ever been to one? What did it have? Was it fun to visit?
- Read the book: Franklin's Class Trip by Paulette Bourgeois & Brenda Clark (Clark's bright illustrations capture the expressions of Franklin and his friends as they explore the museum-from their joy when dressing up as knights in the medieval room to their fear of the dinosaur exhibit. This book will make a good read-aloud, both one-on-one and in a story time setting. Children who have been to museums will see plenty of familiar things and those who haven't may find themselves eager to take a trip to see the dinosaurs and more.) Or read other book about visiting a museum (see suggested reading).
- Have students discuss the book and what kind of museums would they like to see, dinosaur, animal, aircraft, etc.
- Let the group know that they will be going to a bushplane Heritage Centre soon. Ask the class who has been to the Canadian Bushplane Heritage Centre? Who likes planes?
- Discuss what you will be doing at the Canadian Bushplane Heritage Centre.
- Students will be able to:
    - Touch aircraft.
    - Go inside aircraft.
    - Sit in the driver seats of the aircraft.
    - Look at symmetry in aircraft, measure aircraft, compare and order smaller aircraft to larger aircraft.
- Ask the class to brainstorm a set rule for the field trip (no running, wondering off, touching things you are told not to) and reasons why we shouldn't do these things.
- Discuss appropriate clothing to wear for the trip (if in the winter students are asked to bring their jackets and potentially mitts and hats as it can become quite cold in the hangar).
- Discuss with students, what are some good questions they might want to ask about aircraft and write them down as a class have them try to remember to ask those questions during the trip.

Lesson 2

Students Will:

- Reflect on field trip.
- Place information from the field trip in a chart and interpret the data.
- Compare data in pictograph and create their own pictograph.

Materials:

- Handouts from Bushplane Heritage Centre tour
- Large lined flip chart paper
- Aircraft cut-outs
- Bushplane Pictograph Handout

Lesson Instructions:

- Provide time for students to share general observations and reactions to field trip experiences.
- Discuss the assignments students completed while on the field trip.
    - Took measurements, estimations and approximations for the length of an aircraft wing.
- Place groups back together (if possible) and return the handout they completed during the field trip – if the groups cannot be placed back together, distribute handouts to arbitrary students.
- Choose a category to represent in a graph – estimations or approximations – and an aircraft – the Beaver, Otter, Fokker Friendship or CL-215 (remind students of the different qualities the aircraft had, show appropriate cut-outs when talking about each aircraft).
    - The Beaver: one of the best made aircraft – was able to carry water in tanks above its floats to help put out forest fires.
    - The Otter: the 'big brother' to the Beaver it looks very similar only it's bigger and can carry more.
    - CL-215: biggest aircraft in the Canadian Bushplane Heritage Centre – works like a boat and an aircraft put together, this aircraft can gather lots of water by skimming water bodies and filling its tanks. It then takes this water and dumps it on forest fires.
    - The Fokker Friendship: replica of Amelia Earhart's aircraft – was used in a movie as a prop
- As a class use a pictograph to record the student results from their field trip on the large lined flip chart paper.
    - Create graph with proper headings and use appropriate aircraft cut-outs to display the amounts for each group for example:

Example:

Estimations For The Beaver	**Pictures**
Group 1	(30m)
Group 2	(15m)
Group 3	(25m)
Group 4	(45m)

    - Have aircraft cut-outs represent 5 meters each, count in unison as you place the cutouts on the pictograph.
    - Which groups have the highest estimation, which group had the lowest which group was the closest to the actual measurement?

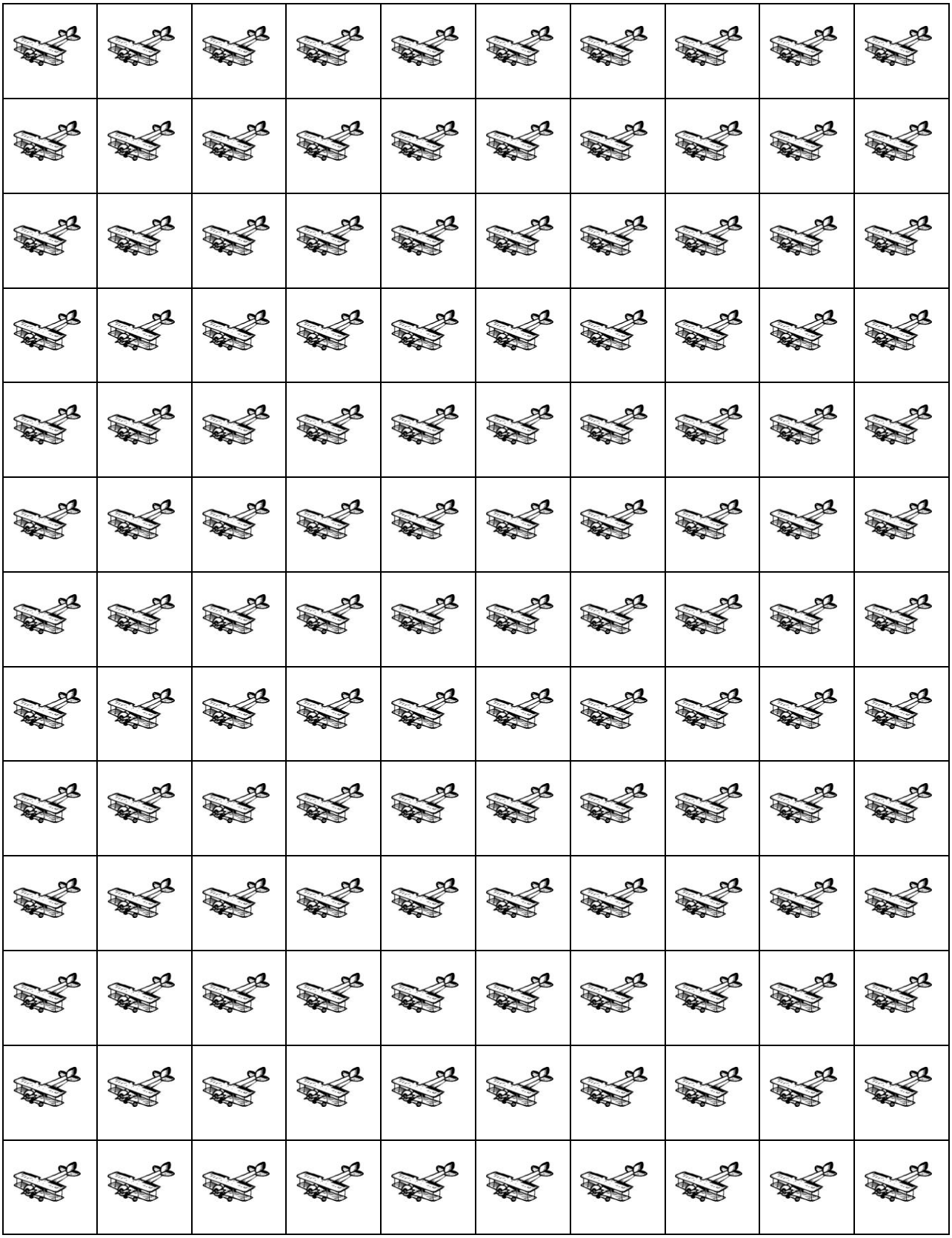
Activity:

- Separate students into groups and have each group create their own pictograph using the Pictograph handout paper and the aircraft cut-outs.
- Have the class label the pictograph or pre-label the pictograph and have students identify where information is. Ensure that students choose an amount to be represented by each picture in their pictograph.
- Have students organize the aircraft cut-outs in the four different groups (Beaver, Otter, CL-215 and Fokker Friendship) and place them on the pictograph based on their recorded measurements.
- Have students count the number in each category and place them properly in the pictograph.
- Ask students to display the count for the cut-outs.

Aircraft Measurement Pictograph

Bushplane:	Pictograph:
Beaver 	
Otter 	
CL-215 	
Friendship Fokker 	

One  = _____



Lesson 3

Students Will:

- Use power polygons or pattern blocks to construct an aircraft.
- Use symmetry in their aircraft shape.

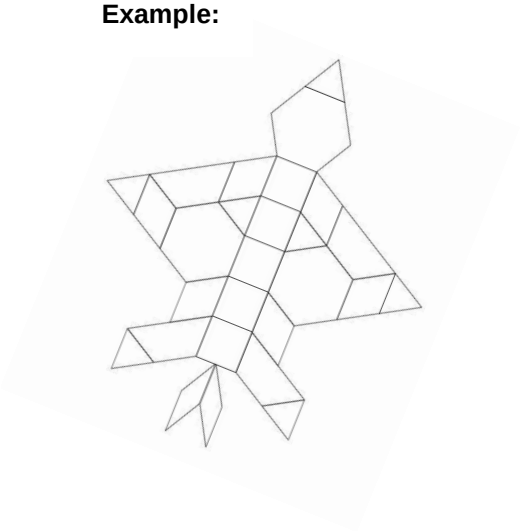
Materials:

- Power polygons sheet for each student
- Blank paper to trace shapes on
- Pencils
- Scissors

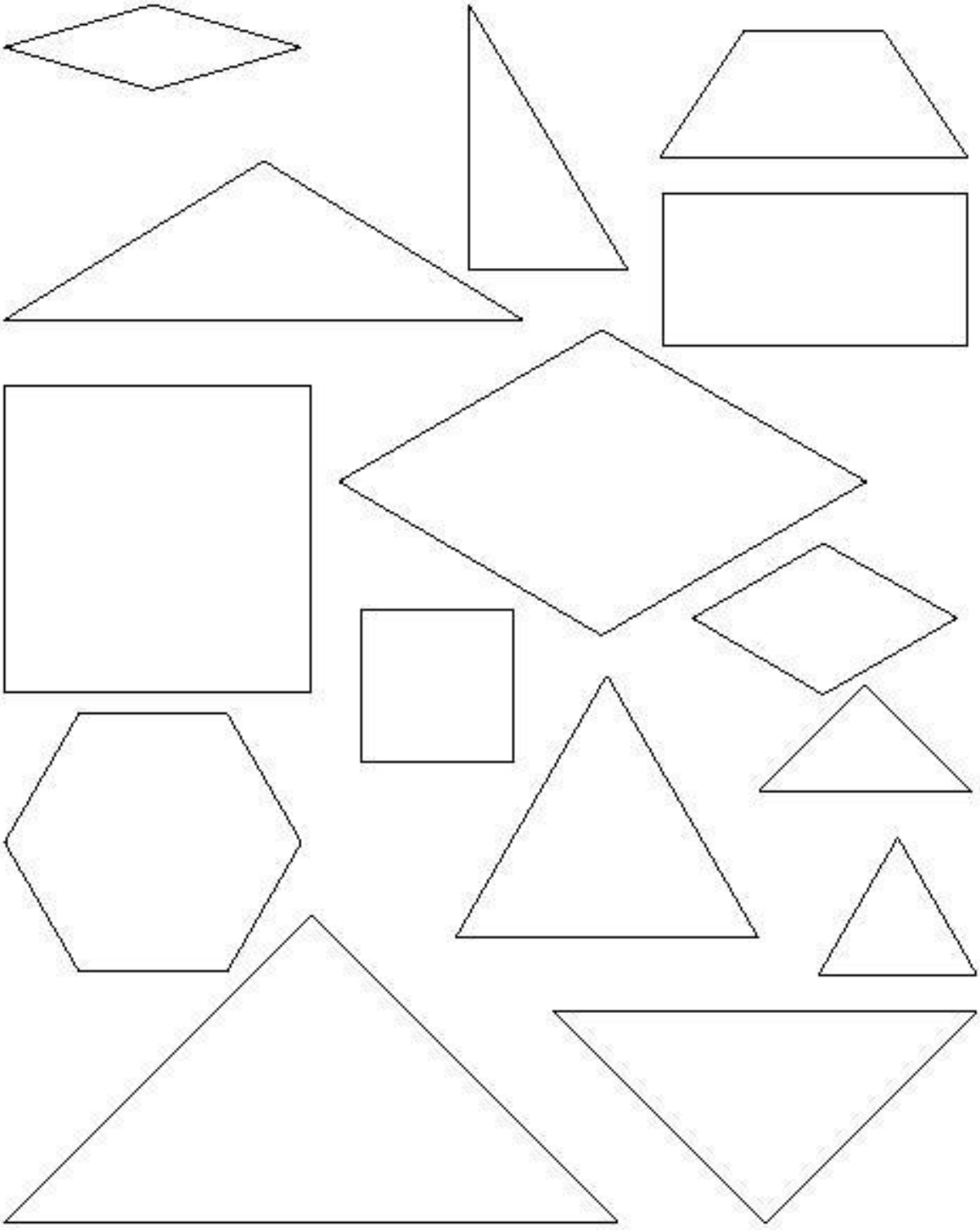
Lesson/Activity:

- Ask students to recall what they have learned about symmetry. Prompt them with questions such as: ask what is symmetry? What things around us in the classroom have symmetry? What does not have symmetry?
- Distribute power polygons worksheet or pattern blocks and have students construct an aircraft using different shapes – ask them to show symmetry in their aircraft – create a top view silhouette of an aircraft.
- Once students have their aircraft shape, have them draw an outline of their shape and remove polygons or pattern blocks one at a time and trace each one within the silhouette so they can see each shape inside the outline.
- Have students identify what shapes they have used to create the aircraft – do these shapes make up larger shapes? (E.g. using two triangles together make the rectangular body of the aircraft).
- Students may colour shapes to their own styles/likes.
- Display their creations as math artwork.

Example:



Power Polygons



Suggested Reading:

Franklin's Class Trip
Paulette Bourgeois & Brenda Clark, Kids Can Press, 1999.

- This time, Franklin is going to a museum with his classmates. He can't wait to go, until he hears from Beaver that, "There are real dinosaurs inside." Terrified, Franklin and his friend Snail worry throughout the entire visit, until they find themselves face to face with a Tyrannosaurus Rex and learn that all that's left of the dinosaurs are their bones. This book will make a good read-aloud in a story time setting. Children who have been to museums will see plenty of familiar things and those who haven't may find themselves eager to take a trip to a museum.

Maisy Goes to the Museum
Lucy Cousins, Candlewick Press, 2008.

- Maisy Goes to the Museum is fun and informative. Children are apprehensive of new experiences. Maisy Goes to the Museum gives children a glimpse of the types of exhibits and activities in the big building adults call a museum. The story book helps to alleviate their fears of the unknown.

The Fantastic Flight of the Silver Dart
Linda Brand, Canada Aviation Museum, 2009.

- The Fantastic Flight of the Silver Dart tells the story of the Aerial Experiment Association (A.E.A) founded by Alexander Graham Bell and his wife, Mabel Bell. Through a lyrical poem, the author takes the readers along with a friendly little mouse and teaches them about experiments leading to the creation of the aircraft that achieved the first powered flight in Canada, the Silver Dart.