Lesson Title/Focus	**Adaptations and Drag on paper airplanes**	**Date**	March 27, 2014
Subject/Grade Level	Science – Grade 6	**Time Duration**	100 Minutes 1:35-2:24/recess/2:34-3:23
Unit	Air & Aerodynamics and Flight	**Teacher**	Kayla Giebelhaus

OUTCOMES FROM ALBERTA PROGRAM OF STUDIES	
General Learning Outcomes:	6-1 Design and carry out an investigation in which variables are identified and controlled, and that provides a fair test of the question being investigated 6-4 Demonstrate positive attitudes for the study of science and for the application of science in responsible ways 6-6 Construct devices that move through air, and identify adaptations for controlling flight
Specific Learning Outcomes:	• Ask questions that lead to exploration and investigation • Identify one or more possible answers to questions by stating a prediction or a hypothesis. • Communicate effectively with group members in sharing and evaluating ideas, and assessing progress • Identify possible applications of what was learned • 6-6-3 – Conduct tests of glider designs; and modify a design so that a glider will go farther, stay up longer or fly in a desired way e.g., fly in a loop, turn to the right

LEARNING OBJECTIVES

Students will:

1. Test gliders and observe distance of flight, length (in time) of flight, and direction of flight.

ASSESSMENTS

- Student airplanes
- Discussion
- Observations

LEARNING RESOURCES CONSULTED	**MATERIALS AND EQUIPMENT**
• *Flight: Grade 6, Topic B* – Edmonton Public Schools • *Science Assessment Manual: Grade 6, Flight* – Edmonton Public Schools	• Paper for airplanes • Measuring tape • Tape • Observations sheet • Hula Hoop • Stop watch

PROCEDURE

Introduction		**Time**
Attention Grabber	Hand back tests and review any questions that need to be talked about	5-10 min
Body		**Time**
Learning Activity #1	*Who can remind me what we talked about when we built our last paper airplanes?* Drag *What impact did drag have on the results of throwing our airplanes?* Today we are going to build more gliders. This time though, you have three challenges: 1. Make an aircraft that will fly the farthest 2. Make an aircraft that will stay up in the air the longest 3. Make an aircraft that will land on a designated target Students will have until recess to complete their airplanes	*30-40 min*
Assessments/ Differentiation:	Students working on airplanes, filling out "Go Gliders Go" worksheet.	---
Learning Activity #2	If time before the bell, begin testing airplanes	----
Recess		
Learning Activity #3	Test airplanes. Students need to bring a pencil and "Go Gliders Go" worksheet to the foyer. After the test for each challenge, students need to write their observations. Will get a mark out of 6 for completion (each part needs to be filled in)	*20 min*
Assessments/ Differentiation	Dart and Drag worksheet, observations	----

Learning Activity #4	Begin discussing pitch, roll, and yaw. Use wooden plane to demonstrate. Ask students follow along on their sheet underlining or highlighting important details. What happened on their gliders? Ask students to add these words under their "Go Gliders Go" observations. Discuss the titles of parts of the airplane. (label the plane and have students label the picture on their worksheet).	*25 min*
Closure		**Time**
Transition To Next Lesson	Do a quick review of what we learned today. Ask for any questions	*5 min*

Sponge Activity/Activities	Continue talking about the plane discussing the role of each of the controls.