THE "NATURE" OF SCIENCE
IN
KANANASKIS COUNTRY

INTERACTIONS AND ECOSYSTEMS
STUDENT DATA FORM

Date: _____

Time: _____

Weather Observations: _____

Group Members: _____

_____

Student Data Sheet

In this field study, you will be exploring three different ecosystem; a grassland, an aspen parkland, and a boreal forest. In your assigned groups, complete the data sheet with as much detail and accuracy as possible as directed in this data form.

TEMPERATURE

Use the air and soil thermometers to gather the following readings. Ensure thermometers are left for 2 minutes to accurately reflect the temperature of the area

	Grassland	Aspen Parkland	Boreal Forest
Air Temp. (°C) **2 m** above the ground			
Air Temp. (°C) **1 m** above the ground			
Air Temp. (°C) at ground level			
Soil Temp. (°C)			

LIGHT

Using the Light / Moisture Meter, set the switch to the "light" position, hold the meter upright so the photometer bulbs are towards the sky and record the reading. The meter reads A (dark) to H (bright).

	Grassland	Aspen Parkland	Boreal Forest
Light (A to H)			

SOIL MOISTURE

Using the Light / Moisture Meter, set the switch to the "moisture" position. Insert the probe gently into the soil and record the reading, 1 (dry) to 10 (wet).

	Grassland	Aspen Parkland	Boreal Forest
Soil Moisture (1 to 10)			

WIND

Answer the following questions for each ecosystem

	Grassland	Aspen Parkland	Boreal Forest
Is the presence of wind in this area: High (H), Medium (M) or Low (L)			
What objects could influence wind patterns in this area?			

SOIL PROFILE

Using the soil sampling tube, remove a cross section of soil from your quadrat. Use the soil sample to draw a detailed diagram of the cross section that includes:

- Carefully label and describe each layer of soil
- Measurements of the thickness of each layer (cm).
- Descriptions of the components of each layer.

After drawing and labelling the soil profile, use the soil sample to complete the following 2 soil tests (compactability and pH), then return it into the hole you removed it from.

Grassland	Aspen Parkland	Boreal Forest

SOIL COMPACTION

From the soil plug retrieved above, gather a handful of soil in your hand. Squeeze the soil tightly in your hand, then open your hand, does the soil stay in a tight ball, crumble slowly, or quickly fall apart? Based on how the soil feels and how easy it was to retrieve the soil plug above answer the following:

	Grassland	Aspen Parkland	Boreal Forest
By using the corresponding letter, record what the soil is like in your quadrat: Highly Compactable (H) Medium Compactable (M) Low Compactable (L)			

SOIL pH

Take a pinch of the soil from the soil sampling tube and add it to the soil sampling vile. Add half the vile with distilled water and shake until a soil slurry forms. Insert a stripe of pH paper into the vile and compare the colour reading.

	Grassland	Aspen Parkland	Boreal Forest
Soil pH (1 to 14)			

SLOPE

Use a clinometer to determine the angle of the slope your quadrat is on. This can be done by placing the clinometer directly on the ground and taking the reading.

	Grassland	Aspen Parkland	Boreal Forest
Slope (in degrees)			

ASPECT

Use the compass to determine the direction that your quadrat is facing. Stand at the up-hill side of the quadrat and look down-hill towards the other side of the quadrat. What direction (in degrees and words) does this line indicate. For example: south / 180 degrees.

	Grassland	Aspen Parkland	Boreal Forest
Aspect (in words and degrees)			

EVIDENCE OF BIOTIC FEATURES - GRASSLAND

Using the square below, complete a detailed drawing of your **3m x 3m quadrat** using symbols to indicate where insects (or insect evidence such as webs, galls, casings, or burrows), tracks, scat, browse, or any other evidence was found. Then detail or identify it on the chart below.

Symbol	Description or identification of Biotic Feature

EVIDENCE OF BIOTIC FEATURES – ASPEN PARKLAND

Using the square below, complete a detailed drawing of your **3m x 3m quadrat** using symbols to indicate where insects (or insect evidence such as webs, galls, casings, or burrows), tracks, scat, browse, or any other evidence was found. Then detail or identify it on the chart below.

Symbol	Description of Biotic Feature

EVIDENCE OF BIOTIC FEATURES – BOREAL FOREST

Using the square below, complete a detailed drawing of your **3m x 3m quadrat** using symbols to indicate where insects (or insect evidence such as webs, galls, casings, or burrows), tracks, scat, browse, or any other evidence was found. Then detail or identify it on the chart below.

Symbol	Description of Biotic Feature

GRID SQUARE DRAWING – GRASSLAND

Randomly place your 50 cm x 50 cm grid square into your quadrat. In the grid below, do a detailed drawing of the plants found in your grid square.

After completing your drawing, label the plants according to the following:
M - Moss
G – Grass
H – Herb (flowering plant)
S – Shrub

GRID SQUARE DRAWING – ASPEN PARKLAND

Randomly place your 50 cm x 50 cm grid square into your quadrat. In the grid below, do a detailed drawing of the plants found in your grid square.

After completing your drawing, label the plants according to the following:
M - Moss
G – Grass
H – Herb (flowering plant)
S – Shrub

GRID SQUARE DRAWING – BOREAL FOREST

Randomly place your 50 cm x 50 cm grid square into your quadrat. In the grid below, do a detailed drawing of the plants found in your grid square.

After completing your drawing, label the plants according to the following:
M - Moss
G – Grass
H – Herb (flowering plant)
S – Shrub

Focusing Questions

Based on your studies today, how would you describe a grassland, aspen parkland, and boreal ecosystems?

_____

_____

_____

What ecosystem did you enjoy the most, list these factors. Do you think other visitors (e.g. recreationalists) would have the same conclusion?

_____

_____

_____

What land use impacts (human impacts) did you observe in each of the ecosystems?

Grasslands: _____

Aspen Parkland: _____

Boreal Forest: _____

Which ecosystem do you think was the most sensitive to human impacts? Detail the reasons why you think this.

_____

_____

_____

If you were a land manager, which ecosystem would you work to protect, why?

_____

_____

_____