

FORESTS ON THE EDGE

FIELD STUDY TRIP

ESSENTIAL QUESTION:

What is the best way to use the last remaining forestlands that are located near the edge of the city?

OUTCOMES:

1. Students will know the benefits of forests and multiple ways forestlands can be used.
2. Students will understand that population growth places increased demands on forests and other natural areas near cities.
3. Students will understand how different land uses are both compatible and incompatible.
4. Students will increase understanding of conservation and sustainability of forestlands.

GRADE LEVEL: 5th-8th

TIME: 3.5 – 4 hours

LOCATION: Tiger Mountain State Forest, High Point parking area.

MATERIALS:

Items provided by Greenway Education Program:

- Greenway event sign
- Track and scat scarf with samples, Greenway map, letters for parents, plant ID book (Pojar) for Greenway Education Staff to use
- 4 backpacks which include: 4 clipboards, Forest Exploration Guide, Land Use Goal Sheet, plant ID cards, animal ID cards, invasive plant sheet, pencils, jeweler's loupes, worksheets, trowel, transect rope, Tiger Mountain map

PROCEDURE: (Adapt questions and language up or down depending on grade level.)

1 WELCOME ON BUS

Meet group in parking lot and board bus. Welcome students and parents to Tiger Mountain and tell them to bring: warm clothes, raingear, drinks and food. Explain that we will be out on the trail for 3 1/2 to 4 hours and they will need all the items just mentioned. They will have a chance to eat snacks and lunch on the trail. This is the last chance to use bathrooms until we return to the bus. After gathering their gear and using the bathroom, we will all meet in the Interpretive Shelter, or other area as directed. Greenway Staff can use track and scat scarves to teach students while everyone uses the bathroom.

2 INTRODUCTION IN INTERPRETIVE SHELTER

Show map of Greenway and talk about what a Greenway is. Discuss "Trail Etiquette." Ask students if they know some of the "do's" and "don'ts" of hiking on forest trails. (Make sure the following are included: stay on the trail and within sight of your chaperone; respect plants by not stepping on or trampling anything; respect animals by not disturbing them; respect others by not throwing anything or hitting each other; be safe by not running on trails or by climbing on logs or other structures; respect others and wildlife by not littering or using loud voices).

Have students define the difference between public and private land. Tell them as they walk through the forest today, they are to pretend that they own it and are responsible for making decisions about how best to use it. Review Essential Question. Review land use goals. Give overview of day:

1) Students will break into four groups with adult chaperones in each group. They will walk the trail looking carefully at the forest using the Forest Exploration Guide. Encourage the chaperones to help keep the students focused.

Tell them each group will be separated by about 5 minutes on the trail. While they wait to start their hike, they can identify plants in the area. Greenway staff will rotate between groups. Each group will look at Tiger Mt. map/sign with Greenway staff before being launched onto the trail and will receive the cell phone number of Greenway staff.

Greenway Education staff should organize backpacks before students arrive so that the Land Use Goal Sheets, Forest Exploration Guide, jeweler loupes and ID cards are ready for students to use.

2) Lunch – students can start eating as soon as they reach the lunch spot.

3) Forest transect – tell students that Greenway staff will explain this activity after lunch.

Have students and chaperones get into their four groups and pass out backpacks. Point out the trail map in the front pocket of the backpack.

3 FOREST WALK

When a small group is gathered around the Tiger Mt. map/sign, reiterate the essential question and tell students that they are to pretend that the forest belongs to them and they have to make a decision about the best way to use it. Send them on the appropriate trail making sure the students are using the materials.

4 LUNCH SPOT

After lunch gather the class into a large circle and say that when scientists and land use experts need to answer the question we are working on, they do what the students just did. It is called a 'walk through' or a hike where the participants keenly observe the environment. Invite each student to share one observation from the walk. Then invite chaperones to share.

5 INTRODUCTION TO TRANSECT STUDY

Tell students that the next step in answering the essential question is to study the forest in more detail. The forest they are in is 14,000 acres and it is impossible to 'walk through' and observe all those acres, so scientists and land use planners gather information through a forest transect. Lay rope on the ground and tell students that they will study a sample of the forest that extends 10 – 20 feet either side of the rope. Scientists studying the forest would take multiple samples, but today we will be just studying one

area of the forest to see how it's done. Scientists gather information about potential sensitive areas in the forest, soil, wildlife, plants, trees and human impact.

Show each clipboard (soil, plants, wildlife, research question) and explain how to complete each worksheet. Demonstrate soil auger. Tell group they will have about 20 minutes to do the activity and then everybody will return to the lunch spot and prepare a 3-minute presentation on their work and an answer to the essential question.

Tell students they will work in the same groups they hiked with and that Greenway staff will put them out into different areas of the forest. Again, while they are waiting to be launched into this activity, chaperones can get the clipboards out and divide their small group into teams.

6 TRANSECT STUDY

Stagger groups along the trail and show them where to lay their transect rope. Briefly orient wildlife group, focusing on the habitat and diet parts of the wildlife cards – *Does this habitat contain food/shelter for wildlife?*; tell soil group not to take sample from trail or rotten log; make sure plant group has Native Plant ID book and Invasive Plant Sheet. Remind them they will do a presentation on their work. Greenway staff rotates from group to group. When groups are done with their research, cue them to fill out the research question sheet. Some groups vote on what land use issue(s) to use and some discuss. Work with students to include the 4 R's (reduce, reuse, recycle, rethink) with specific examples of ways they can reduce their own use of resources. Have students think about alternative building strategies: *How can we build so that the footprint is smaller? So that the building is greener?*

7 PRESENTATION

Have each group present their recommendations. If there is time, invite groups to challenge each other, ask questions, discuss concepts. Help them review the 4 R's and multiple uses of forested lands, alternatives to timber harvesting, different ways to build on and develop land and finally, which goals are compatible and which are incompatible.

8 WRAP – UP

Show the big Tiger Mt. map and tell students that when adults decide how to use the forestlands they do what the students just did: observe, transect and discuss. Tell students that all the land they see is public land and has two primary land use goals: wildlife habitat protection and low impact recreation and is a Natural Resource Conservation area. Show the rest of Tiger Mt. on map and point out its primary land use goals: recreation and timber harvesting. Talk about timber harvesting in 100-acre plots and the money for the trees going to build schools. Talk about sustainable forestry if there is time. Thank chaperones and ask if there are any questions.



FOREST EXPLORATION GUIDE

TRADITION LAKE TRAIL, TIGER MOUNTAIN

Please stop at the following points of interest along the trail with your group. Carefully observe the forest and then discuss the questions listed for each stop. The primary question you are to answer today is: *What is the best way to use the forestlands that you are walking in?*

STOP 1 Interpretive sign: "Tales of Tradition Plateau"

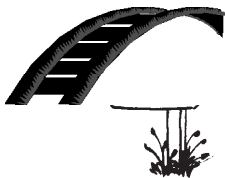


- ◆ Read the sign and find a sword fern.
- ◆ Look around at the forest. Really look. Notice the size of the trees. Are there big, medium and small trees? If so, it is one sign of a healthy forest.

STOP 2 Walk past the second bench and look for the tree with rectangular holes and no top

- ◆ What made the holes? Why were they made?
- ◆ Look all around the forest to see if other trees have similar holes.
- ◆ What might have caused the top of the tree to fall?
- ◆ Has the forest changed from your first stop?

STOP 3 Walk to bridge and read interpretive sign



- ◆ Stand on the bridge and notice the sides of the streambed. What caused it to be washed away? What could prevent this from happening? Why is it unhealthy for the stream water to have soil in it?
- ◆ Where does this stream come from? Where does it go?
- ◆ Why is the stream important to this forest ecosystem?
- ◆ What could happen to the stream if houses were built here?

STOP 4 Stand on the bridge



- ◆ Keep standing on the bridge and look all around the area for invasive species.
- ◆ What are invasive species? They are not native plants and they are not good for our environment. Why?
- ◆ How many can you find? Holly and Blackberry are visible from the bridge.
- ◆ Use your invasive plant photos to identify the invasive species.

STOP 5 Nurse log or nurse stump



- ◆ Find a log on the ground or a decaying stump that has plants or trees growing out of it. This is called a nurse log or nurse stump.
- ◆ What kind of tree is the base? Is it alive or dead?
- ◆ What is growing out of the huge stump? How did the plants get there?

(SEE OTHER SIDE)



STOP 6 Interpretive sign: "What's Tradition Lake up to?"



- ◆ Read sign.
- ◆ Look at the trees around you. Are they broadleaf or coniferous? Most broadleaf trees lose their leaves during the fall and most coniferous trees keep needles all year long.
- ◆ Why is it good that there are a lot of trees that have fallen on the ground?
- ◆ How is this forest different from a park that you visit in the city?

STOP 7 Find a tree that has been cut alongside the trail



- ◆ Why was this tree cut down?
- ◆ How old was it when it was cut? (Count the growth rings. One light colored ring plus one dark colored ring equals one year of growth.)
- ◆ Notice the difference between the size of the rings. What causes that difference?

STOP 8 Interpretive sign: "Keeping Our Distance"



- ◆ Read the sign. What made the lake? Who or what lives by the lake?
- ◆ Why was the trail moved away from the lakeshore?
- ◆ Can animals live in this forest comfortably while hikers use the trails?

STOP 9 Walk to the intersection of trail and stop in the forest

- ◆ Remember that you are to decide the best way to use this forested land.
- ◆ Get everyone to be absolutely still and silent and then look around at the forest.
- ◆ What do you hear? What do you see? Have the group share what they noticed.
- ◆ Use the Native Plant ID book and identify three plants or trees. Compare the leaves, bark or berries from the photos to the actual plants to help you figure it out what they are.
- ◆ Look for invasive species. Review definition of invasive species.

STOP 10 Cedar tree with hollowed trunk (you can walk into it)

- ◆ Why do you think this tree is hollow?
- ◆ Look around! Can you find evidence of the event that hollowed out this tree?
- ◆ Look around again and think about whether this forest has been logged. If so, how long ago? Was it a good idea to log the forest? Why or why not?

Meet the rest of your class in the picnic area located beside the lake. Look for large Western red cedar trees and benches to identify this spot. If you get to the Powerline Road you have gone too far!



FOREST EXPLORATION GUIDE

BUS TRAIL, TIGER MOUNTAIN

Please stop at the following points of interest along the trail with your group. Carefully observe the forest and then discuss the questions listed for each stop. The primary question you are to answer today is: *What is the best way to use the forestlands that you are walking in?*

Walking directions: Turn left at first intersection and walk about ¼ mile until you reach the intersection of the Bus Trail/Tiger 3 Summit Trail. Turn right onto the Bus Trail. **Do NOT go on the Tradition Lake Trail.**

STOP 1 Stream



- ◆ Stand on the bridge and notice the sides of the streambed. What caused it to be washed away? What could prevent this from happening? Why is it unhealthy for the stream water to have soil in it?
- ◆ Where does this stream come from? Where does it go?
- ◆ Why is the stream important to this forest ecosystem?
- ◆ What could happen to the stream if houses were built here?

STOP 2 HUGE upright nurse stump on left side of trail

- ◆ What kind of tree is the base? Is it alive or dead?
- ◆ What is growing out of the huge stump? How did the plants get there?
- ◆ Can you find any more nurse logs and nurse stumps?

STOP 3 Walk 50 feet (measure by walking toe to heel)

- ◆ Notice the ditch on the left side of the trail. What is it filled with? How did that happen?
- ◆ Did the same event that carved the stream create this disturbance?
- ◆ Do you think this is an example of erosion? How could erosion be stopped here?

STOP 4 Bus skeleton

- ◆ What happened? How long do you think this bus has been here? (Look for clues in the forest to help you answer this question.)
- ◆ Do you think this forest has been logged? If so, how long ago?
- ◆ If you decided to log the trees around the broken down bus, what impact would that have on the ecosystem you are standing in? Would you have to build a road to remove the logs?

*** Be sure to turn left onto the Bus Trail.**

(turn page over)



STOP 5 Walk two minutes and stop in the forest

Remember that you are to decide the best way to use this forested land.

- ◆ Get everyone to be absolutely still and silent and then look around at the forest.
- ◆ What do you hear? What do you see? Have the group share what they noticed.
- ◆ Use the Native Plant ID book and identify three plants or trees. Compare the leaves, bark or berries from the photos to the actual plants to help you figure it out.

STOP 6 Walk and look for a standing dead tree with holes

- ◆ What made the holes? What other animals do you think live out here?
- ◆ Can animals live out here comfortably while hikers use the trails?

STOP 7 Find a tree that has been cut alongside the trail



- ◆ Why was this tree cut down?
- ◆ How old was it when it was cut? (Count the growth rings. One light colored ring plus one dark colored ring equals one year of growth.)
- ◆ Notice the difference between the size of the rings. What causes that difference?

STOP 8 Invasive species vs. natives

- ◆ Stop and look around you.
- ◆ What is the difference between invasive species and native species?
- ◆ Do you see any invasive species? Use the invasive species sheet to identify.

STOP 9 Walk and notice the types of trees

- ◆ Look at the trees around you. Are they broadleaf or coniferous? Most broadleaf trees lose their leaves during the fall and most coniferous trees keep needles all year long.
- ◆ Notice the changes in the forest. Are the trees all the same size? Do they look healthy? Why is it good that there are a lot of trees that have fallen on the ground?
- ◆ How is this forest different from a park that you visit in the city?

STOP 10 Find another sign of human impact from long ago

- ◆ Observe the forest canopy for a 'sign' of human impact from about twenty years ago. This is tricky to find!

Meet the rest of your group in the meadow. This is where we will have lunch and complete the remaining educational activities. Be on the look out for deer, as they love to browse in this area.



Land Use Goal Sheet

WATER QUALITY PROTECTION – This forest can be preserved to protect the water quality of lakes, streams, rivers and Puget Sound if:



- ◆ There are streams in the forest. Salmon or other fish live in the streams, wildlife drink from or find food in the water, and frogs and salamanders lay their eggs in the stream.
- ◆ Trees along the waterways prevent erosion by the roots holding in the soil. Tree root hairs and soil filter pollutants from rainwater and runoff. This helps to keep waterways clean.
- ◆ Tree roots prevent floods by absorbing excess water. The roots slowly release the water back into the soil and streams over time.
- ◆ The forest is near a city. Urban citizens like us depend on forests to keep our drinking water clean.

AIR QUALITY PROTECTION – This forest can be preserved to protect air quality if:



- ◆ The forest is near a city. Tree leaves help remove pollution from the air caused by car fumes and burning fossil fuels.
- ◆ Trees remove carbon dioxide from the air and put oxygen back into the atmosphere.

DEVELOPMENT – The forest can be removed and the land used for development if:



- ◆ The soil is stable and drains well. Not too much sand or clay.
- ◆ The land is relatively flat. Land that is hilly is more expensive to build on.
- ◆ The trees can be easily and economically removed.
- ◆ There is good public transportation (buses, bike lanes, light rail) to where you want to build. Can people get to jobs, schools, hospitals, restaurants and recreation easily from this location?
- ◆ The impact on wildlife habitats, and air and water quality is low.
- ◆ If you decide to develop this land, how can you do it so that the impact on the environment is low? Consider: building materials, size and shape of the building, closeness to water, density of the development (for example 20 houses/acre vs. 5 apartment buildings/acre). Would you leave any of the trees?
- ◆ There is not a lot of public opposition to the development plan.

FORESTRY – The forest can be used for timber harvesting if:



- ◆ The trees are plentiful and big enough to be useful. (40 – 60 years old)
- ◆ The trees are Douglas firs, Western red cedars or Western hemlocks, which are the most commonly logged trees in the Pacific Northwest.
- ◆ The forest could be replanted.
- ◆ There is not a lot of public opposition to the harvesting plan.
- ◆ The forester can make money from the sale of the trees.
- ◆ If you decide to log this land, could you do it so the impact on the environment is low?

(SEE OTHER SIDE)



AGRICULTURE – This land could be used for farming if:

- ◆ The trees can be easily removed.
- ◆ There is plenty of water for crops and animals. Be sure to think about whether the water is easy to reach for the animals or for watering.
- ◆ The soil is high in nutrients (substances like vitamins and minerals that helps crops grow).
- ◆ The land is relatively flat and not rocky.

HIGH IMPACT RECREATION – This forest can be used for high impact recreation if:

- ◆ There is good public transportation to the area or it is convenient for people to get to it. Is it better to drive to the sports fields, take public transportation, bike or walk?
- ◆ The land is mostly flat and the soil is loam (a mix of sand, clay and organic material). Organic material is something that was alive once and is now dead, like leaves, branches, plants, trees, animals.
- ◆ The soil is mostly loam, NOT sand because sand will erode easily.
- ◆ The soil is mostly loam NOT clay. Clay does not drain well which causes flooding and makes the clay slippery to walk on. Parking lots and bathrooms can be easily built and maintained.

LOW IMPACT RECREATION – This forest can be used for low impact recreation if:



- ◆ The soil is stable enough to build trails on. The soil should be loam (a mix of sand, clay and organic material). Organic material is something that was alive once and is now dead, like leaves, branches, plants, trees, animals.
- ◆ The soil is mostly loam, NOT sand because sand will erode easily.
- ◆ The soil is mostly loam NOT clay. Clay does not drain well which causes flooding and makes the clay slippery to walk on.
- ◆ There are interesting things for people to see and learn in the forest.
- ◆ It is a healthy forest with a diversity of plants and animals.

WILDLIFE HABITAT PROTECTION – This forest can be protected for wildlife if:



- ◆ There are streams, wetlands or lakes that provide habitat for animals such as amphibians, birds, and insects.
- ◆ There is a diversity of plants and trees that provides a range of habitats for animals. Are there evergreen trees that keep their needles all year long? Are there deciduous trees that lose their leaves in the fall?
- ◆ There are multiple sizes of trees. Healthy forests have big, medium and little trees.
- ◆ The trees and plants form 3 layers or levels in the forest. The layers are: forest floor, understory and canopy. Look at the forest to see these layers. Multiple layers provide a diversity of habitat, which is healthy for the forest and the animals.



FOREST TRANSECT WORKSHEET

Names: _____ Date: _____

SOIL

TASK/QUESTION	ANSWER
<ul style="list-style-type: none"> ◆ Take two soil samples along your transect. Take one from the surface soil and one from as deep as you can. To get a good sample make sure you do NOT take it from the trail or a rotting log. Refer to the soil guide sheet for more information on soil. ◆ Is the upper sample (#1) light or dark? Why? ◆ Is the lower sample (#2) light or dark? Why? ◆ Feel the samples. Are they wet or dry? What would cause this? <p><i>Look at the information on the soil guide sheet before answering the next questions.</i></p> <ul style="list-style-type: none"> ◆ Pinch the soil between your thumb and forefinger and rub it around. Does it stick together when you press it? (Clay) Does it feel gritty? (Sand) Is it smooth? (Silt) ◆ Is there any organic material in the soil? How can you tell? What is organic material? ◆ Do you think your soil is mostly clay, silt or sand? Or is it a combination with organic material added? (Loam) 	





Circle and then count the Yes and No answers to the following questions. After you count each section, think about how many yeses and noes you had.

Consider **Recreation** as a goal for this forest.

- The soil is mostly loam, NOT sand because sand will erode easily.
YES NO
- The soil is mostly loam, NOT clay. Clay does not drain well which causes flooding and makes the clay slippery to walk on. Parking lots and bathrooms can be easily built.
YES NO
- There are many interesting things to see and learn in this forest. (good for low impact)
YES NO
- There is wildlife in the forest. (good for low impact recreation)
YES NO
- There is good transportation available to this area. (good for low and high impact)
YES NO

Consider **Development** (building houses, schools, hospitals) as a goal for this forest.

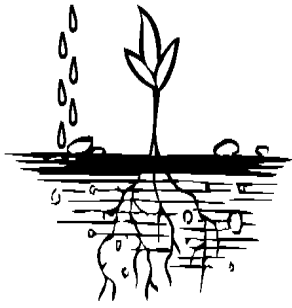
- The soil is mostly loam, NOT clay. Clay does not drain well which causes flooding and makes the clay slippery to walk on. Parking lots can be easily built.
YES NO
- The soil is mostly loam, NOT sand because sand will erode easily.
YES NO
- The land is relatively flat. Land that is hilly is more expensive to build on.
YES NO
- The forest area is near a city so that there is access to jobs, shopping, schools etc.
YES NO
- The area does NOT have streams or lakes that provide habitat for diverse plants, animals, and birds.
YES NO
- There are NOT many interesting things to see and learn in this forest.
YES NO

Count the number of yeses/noes you have circled. Let that information help you decide the land use goals you think are best for this forest. Circle your choices:

Wildlife Protection
Air Quality
Agriculture
Low Impact Recreation

Forestry
Water Quality
Development
High Impact Recreation

Bring your group together to discuss your conclusions and prepare for a 5 minute presentation to the whole class.



SOIL GUIDE

Knowing how much sand, silt, clay and organic material are in the soil helps determine how water moves through the soil. When water is held in the soil, rather than rushing straight through, it allows time for roots of trees to absorb the water. This is good, because then trees get water AND they get the nutrients that have been dissolved in the water.



SOIL TEXTURES

Clay – smallest size particles that feel slippery and cannot be seen with unaided eye. There is very little space between the particles. Clay allows water and air to enter and exit very slowly. It holds the most nutrients and can make slippery mud.

Silt – medium size particles that feel like flour when dry or a little bit gritty. Silt allows water to pass through slowly and is one texture that makes mud. This texture makes good farm land, but erodes easily.

Sand – largest size particles that feel gritty and can be seen by the unaided eye. There are large air spaces between particles so sand doesn't hold water or nutrients. Plant and tree roots can't hold onto this soil texture, but some plants send roots deep through the sandy topsoil to the subsoil.

Loam – healthy combination of sand, silt, with a little bit of clay and organic material. This texture has enough large and small air spaces between the particles for air and water to flow in. Plant roots can easily grow through these spaces. Loam is the best for growing plants/trees as it holds water just long enough for trees to absorb nutrients.

Clay

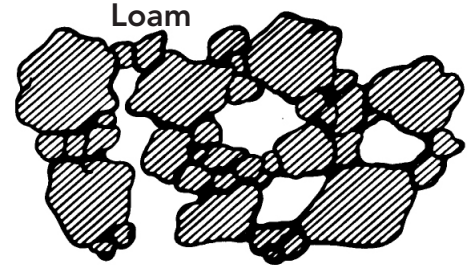
Clay particles -
12,000 particles
in a line = 1 inch



Silt



Sand



Loam

Which soil holds water the best? Worst? What could you add to the soil to improve the texture and increase the fertility?



FOREST TRANSECT WORKSHEET

Names: _____ Date: _____

PLANTS

TASK/QUESTION	ANSWER
<p><u>PLANTS: FOREST FLOOR</u></p> <ul style="list-style-type: none">◆ Look on the forest floor and identify at least 3 different plant species along your transect line. Draw one on the back of this sheet.	
<p><u>PLANTS: UNDERSTORY</u></p> <ul style="list-style-type: none">◆ Look at the plants and bushes growing in the area called the understory. It is between the forest floor and the tops of the trees. Identify at least 3. Identify both natives and invasives. Draw one on the back of this sheet.	
<p><u>PLANTS: CANOPY (TALLEST TREES)</u></p> <ul style="list-style-type: none">◆ Identify the dominant (most common) tree species around your transect. Draw one on the back of this sheet. ◆ Are the trees around your transect primarily evergreen (keep their leaves all year) or deciduous (lose their leaves in the fall) trees or a mix of both?	



Draw forest floor plant here:

Plant name: _____

Draw understory plant here:

Plant name: _____

Draw canopy plant here:

Plant name: _____



Circle and then count the Yes and No answers to the following questions. After you count each section, think about how many yeses and noes you had.

Consider **Wildlife Protection** as a goal for this forest if it is rich in biodiversity, meaning it can support different types of habitats for different animals.

- You found trees and plants growing in all three layers of the forest (floor, understory, canopy).
 YES NO
- You found that there is a mix of evergreen trees (have needles which they keep year-round) and deciduous trees (lose their leaves in the winter).
 YES NO
- You found no or very few invasive species, since invasive species drive out native plants and animals and reduce biodiversity.
 YES NO

Consider **Agriculture** as a goal for this forest.

- This area has very few trees and is relatively flat.
 YES NO
- Has plenty of water for crops and animals.
 YES NO
- The soil is not too rocky so it can grow crops or grass for the animals.
 YES NO
- Very little wildlife present.
 YES NO

Consider **Forestry** as a goal for this forest.

- You have seen many large trees, especially the valuable Douglas fir and Western hemlock that make good lumber for houses and other buildings.
 YES NO
- Some valuable trees could be cut without hurting streams, lakes, rivers.
 YES NO
- You found this land does NOT have enjoyable hiking trails.
 YES NO

Count the number of yeses/noes you have circled. Let that information help you decide the land use goals you think are best for this forest. Circle your choices:

Wildlife Protection
 Air Quality
 Agriculture
 Low Impact Recreation

Forestry
 Water Quality
 Development
 High Impact Recreation

Bring your group together to discuss your conclusions and prepare for a 5 minute presentation to the whole class.



FOREST TRANSECT WORKSHEET

Names: _____ Date: _____

WILDLIFE

- ◆ Explore along your transect line and look at the surrounding area for evidence of animals (birds, insects, reptiles, mammals). Record what evidence you find of any animals living in the area. List animals you think might live here – make sure that the habitat and diet needs for these animals listed on the wildlife ID cards are met by this forest! Write your list here:

- ◆ Compare your list of animals to the Animal ID Cards found in the backpack. Fill in the chart below.

List 3 animals you are curious about from the animal ID Cards.	Read the information on the cards of the animals that interest you. Look at the Animal habitat and determine if this animal would survive here. Why or why not?
1.	
2.	
3.	



Circle and then count the Yes and No answers to the following questions. After you count each section, think about how many yeses and noes you had.

Consider **Water Quality** as a goal for this forest.

- There are streams or lakes in the forest — salmon or other fish live in these waterways, wildlife drink from or find food in them, and frogs and salamanders lay their eggs in them.

YES NO

- The forest is near a city. People in a city depend on forests for clean drinking water.

YES NO

Consider **Air Quality** as a goal for this forest.

- The forest is near a city – trees help to reduce the effects of air pollution caused by car exhaust and by factories.

YES NO

Consider **Wildlife Protection** as a goal for this forest if it is has a variety of habitats for animals.

- You found plenty of water for wildlife.

YES NO

- You found evidence of good habitat for animals. A good habitat has lots of variety of plants and trees that provide food and shelter.

YES NO

- You found no or very few invasive species.

YES NO

- You found this land has good opportunities for low impact recreation and it is compatible with wildlife protection.

YES NO

- You found this land has good opportunities for high impact recreation and it is not compatible with wildlife protection.

YES NO

Count the number of yeses/noes you have circled. Let that information help you decide the land use goals you think are best for this forest. Circle your choices:

Wildlife Protection
Air Quality
Agriculture
Low Impact Recreation

Forestry
Water Quality
Development
High Impact Recreation

Bring your group together to discuss your conclusions and prepare for a 5 minute presentation to the whole class.



FOREST TRANSECT WORKSHEET FINAL REPORT

Names: _____

Remember that our society needs:

- Development, which provides homes and creates jobs so people can afford the basic necessities of life
- Timber to make homes to live in and paper products to use
- Clean air for healthy living
- Clean water for healthy living
- Forests for recreation and enjoyment of nature
- Forests that have healthy habitats for wild animals
- Farmlands to grow food for our population

Now, based on the information you have learned in the classroom, on your hike, and the re-search of your transect teams, please answer the following BIG question: What is the best way to use these forestlands? You may have more than one goal if the goals are compatible – and you must explain how they are compatible!

If you chose to avoid forestry, agriculture and development, how will you provide for human needs for jobs, timber, homes, food and paper products?

If you chose forestry, agriculture or development, how will you provide clean air and water, places for recreation and habitats for wild animals? How can you build so that the impact on the environment is low? Consider: building materials, size and shape of the building, closeness to water, the density of the development (for example, 20 houses/acre vs. 5 apartment build-ings an acre).

What can each of you do personally to help protect/preserve natural areas? List at least three actions in your daily lives.