**Venn Diagrams Student Worksheet**

Name:

The animal kingdom is filled with hundreds of different species. These animals are all different but many are similar in ways we would never think. In this activity we, as a class, are going to take an assorted group of animals and categorize them by their similarities and differences. Then we will develop Venn Diagrams to show the differences we’ve come up with.

**Materials:**

* 3 Large Hula Hoops
* Animal Pictures
* Set Labels for Hula Hoops

**Animal List:**

Hippopotamus Great White Shark Dolphin Toucan Puffin Mallard Duck Pelican Horse Alligator Bald Eagle Robin Pig Bullfrog Grey Squirrel Moose House Cat Large Mouth Bass Rabbit Beaver Bat Flamingo Parrot Polar Bear Flying Fish Blue- Footed Booby

**Vocabulary:**

The entire diagram represents the **Union** of the sets. This is the group of all things in A and all things in B. It is written as (A u B).

The middle of the Diagram where the circles overlap is called the **Intersection.** This is the group of things that are in both A and B. It is written as (A n B).

**Part One: Two Circle Venn Diagrams**

**Problem 1**

Animals that Live on Land (A)

Animals that Live in Water (B)

Total number of animals that live on land:

Total number of animals that live in water:

Total number of animals that live in both:

How could we find the of Total number of animals if we were not given a list to count?

There is a formula to help us figure out the number of elements in the Union based on the groups given.

**n(A u B)= n(A) + n(B) – n(A n B)**

**In other words:**

**# of things in the union= # of things in A + # of things in B - # of things in the intersection**

Now look back at Problem 1. We can use this formula to find the Union of the sets

n(A)= n(B)= n(A n B)=

n(A u B)=

**Problem 2**

Domesticated Animals (A)

Wild Animals (B)

Total Number of Domesticated Animals:

Total Number of Wild Animals:

Total Number of Animals Both Domesticated and Wild:

n(A)= n(B)= n(A n B)=

n(A u B)=

**Part Two: Three Circle Venn Diagrams**

Three Characteristics: Swim, Fly, Lives in North America

We will have many more combinations of characteristics now than when we only had two characteristics. We will now have seven different combinations of characteristics.

The Seven Possibilities are:

Animals that Swim (A):

Animals that Live in North America (B):

Animals that Fly (C):

Animals that Swim and Fly:

Animals that Swim and Live in North America:

Animals that Fly and Live in North America:

Animals that Swim, Fly, and Live in North America:

Total Number of Animals that Swim (A):

Total Number of Animals that Live in North America (B):

Total Number of Animals that Fly (C):

Total Number or Animals that Swim and Fly (A n C):

Total Number of Animals that Swim and Live in North America (A n B):

Total Number of Animals that Fly and Live in North America (C n B):

Total Number of Animals that Swim, Fly, Live in North America (A n B n C):

Just like in two circle Venn Diagrams there is also a formula to find the Union of the three sets.

**n(A u B u C)=n(A) + n(B) + n(C) – n(A n B) – n(B n C) – n(A n C) + n(A n B n C)**

Calculate n(A u B u C)