**Activity 3 part 1 Introduction to pattern matching**

So far we have learned about tree growth, tree ring formation, and what causes tree rings to be large or small. We have learned to assign calendar years to individual tree rings as long as we know the date of one of the rings.

Now imagine you have a sample from a piece of wood that was collected some time ago from a stump. We are going to learn how to put calendar dates on tree rings when we don’t know when the tree lived or died.

Part 1: Pattern matching

Let’s start by looking at each of the four paper “cores” that you have been given to do this exercise.

The center of the tree (pith) is colored green on each core, the outside (bark) is the thick black wavy line on the opposite side of each core.

Step 1:

Start with any one of the cores:

Color the smallest (thinnest) rings red.

Color the largest (widest) rings blue.

Leave the medium sized rings the color of the paper.

Next, follow the above same steps for the remaining 3 cores.

Starting with any two cores, slide one core over the other until the color and ring patterns match up. Once you have a match, keep the two cores in that position.

Carefully add a third core and match it to the other two.

Now add the fourth core and match it to the other three.

If one of these cores was collected from a living tree this winter (2015), so the last full ring is 2014, and all the others were from trees that died before 2015, can you put calendar dates on all the cores?

Go ahead and assign dates to the rings of all the cores.

**Activity 3 Part 2: Crossdating black board activity**

What we usually see in tree rings is that even if two trees experience the same environmental signal, little differences will make them grow at different rates.

Just like people who are the same age, the growth pattern in trees will depend on the individual.

What is an example of a time when two different cores are likely to have almost identical growth spacing and signal?

Now let’s look at a way to match growth patterns from two trees with totally different growth rates.

For the rest of this activity we will all work together as a group to crossdate two pieces of real wood…

Think back to the thin rings you colored in Red in the last exercise. We are calling those rings “marker years” and we can then draw the pattern of the thin rings on the board using something called a skeleton plot.