Capture

1. Capture a sample of goldfish from the bay (container) using the net and count them.
2. Tag these captured fish by replacing each one with a colored goldfish. (Note: Since in this lesson we are tagging by replacement, the goldfish replaced by the colored goldfish can no longer count as part of the population and MUST be disregarded).
3. Put these tagged fish back into the bay. (Emphasize that the number in the population is unchanged.)
4. Since fish crackers don’t swim, mix the fish to distribute the tagged fish.
5. Capture another sample from the bay using the net.
6. Record the total number of fish is this sample and the number of tagged fish in this sample. Return the entire sample to the bay.
7. Repeat steps 4-6 as many times as time allows.

<table>
<thead>
<tr>
<th>Sample 1</th>
<th>Tagged/Total</th>
<th></th>
<th>Sample 2</th>
<th>Tagged/Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample 3</td>
<td>Tagged/Total</td>
<td></td>
<td>Sample 4</td>
<td>Tagged/Total</td>
<td></td>
</tr>
</tbody>
</table>

What information has been obtained from the capture?

Do we know how many fish are in the bay yet?

When the fish are recaptured, what could be found in the sample?

What do you expect to find?

After the first recapture, what information will you obtain?

We will use a proportion to help determine the total population of fish in the bay.

# TAGGED/TOTAL # IN BAY = # TAGGED IN RECAPTURE/TOTAL # IN RECAPTURE

Using a calculator write the four proportions formed from the four samples above and solve.

Sample 1          Sample 2          Sample 3          Sample 4

Now tell the students exactly how many fish you placed in each bay. (Each bay should have had the same number of fish). Students should then compare the actual number of fish to their results.