



Salmon Survival Activity – Adapted from Trout Unlimited for at home set-up

This game teaches kids about the salmon lifecycle and obstacles that they overcome to reproduce.

Recommended age: children and adults 6 years and older

Materials

- Red lentils (or you can substitute other lentils, dried beans, pony beads, pea gravel, popcorn kernels, etc.), approximately 1 cup per participant
- Cups for each participant (6 – 8 oz or approx. 1 cup)
- A container for discarding lentils
- One 6-sided die or spinner (instructions for making paper dice can be found on the Trout Unlimited instructions)
- Lesson instructions
- Lifecycle cards (optional, found on Trout Unlimited instructions)

Game set-up

Each participant will start with a full cup of lentils. Explain that this represents a *redd*, which is what we call a nest of salmon eggs. There are 9 stages in this game for each part of the salmon life cycle. Each lentil represents a salmon that will attempt to migrate to the ocean, grow into a mature adult, and return to the freshwater stream where it hatched to spawn.

Game Play

At each stage, read the lifecycle description and then have each participant roll the 6-sided die. The number on the die will correspond to an obstacle that will eliminate a fraction of their salmon. Have participants pour out *the fraction of their remaining lentils indicated by the obstacle key*. Be sure that they are pouring out a fraction related to the **remaining lentils** and not the amount that they started with. Younger participants may need assistance determining fractions. Remind participants that this is not a competition, so it is important that the fractions they pour out are accurate.

When you have completed all 9 stages, count the remaining lentils in your cups and average them (there should be very few). Explain that this activity models how difficult completing the salmon lifecycle can be. On average, in a nest of 4,000 salmon eggs, only 3 or 4 will survive to

spawn. Reflect on the obstacles you encountered- was there anything that stood out or surprised you?

Stage Descriptions and Obstacle Keys

Stage 1 - You are a salmon egg, just laid in a redd (nest) of gravel (small rocks).

Dice rolls:

1. 1/2 are suffocated by sediment from a road
2. 2/3 are smothered by dirt from a building site
3. 1/3 are eaten by a big fish (and roll again at this station)
4. 2/3 are stepped on by a careless person
5. 1/2 are eaten by a big fish
6. 2/3 are suffocated by soil from a clear-cut forest

Stage 2 - You have developed (grown) into an eyed egg. Your eye can be seen through your egg shell.

Dice rolls:

1. 1/2 are stepped on by a careless person
2. 2/3 are eaten by a big fish
3. 1/2 are washed away during heavy rains
4. 1/2 are eaten by a big fish (and roll again at this station)
5. 1/3 are smothered by dirt from a road
6. 2/3 are washed out by a flood

Stage 3 - You've hatched into an alevin with a big yolk sac (belly full of food).

Dice rolls:

1. 1/2 get stepped on by a careless person
2. 1/3 get too warm and suffocate (and roll again at this station)
3. 1/2 get caught up in a flood
4. 1/2 get smothered by soil from a clear-cut
5. 2/3 get eaten by big fish
6. 1/2 get stepped on by a careless person

Stage 4 - Now you're a little fry with good camouflage. You eat little insects and hide a lot.

Dice rolls:

1. 2/3 get eaten by bigger fish
2. 1/3 get eaten by river otter
3. 1/2 get eaten by merganser (a type of bird)
4. 1/2 get eaten by river otter
5. 1/2 get eaten by bigger fish (and roll again at this station)
6. 1/2 can't find enough food and starve

Stage 5 - When you become a smolt, your body changes so that you can live in salt water. You look all silvery (shiny) now.

Dice rolls:

1. 2/3 are eaten by seals
2. 1/3 lose their way downstream at a dam
3. 1/2 die from city pollution
4. 2/3 get eaten by an otter
5. 1/2 get eaten by bigger fish
6. 1/2 get eaten by sea birds (and roll again at this station)

Stage 6 - You spend years in the Pacific Ocean, growing to become a HUGE adult salmon. The ocean is full of good food.

Dice rolls:

1. 2/3 are eaten by seals
2. 1/3 are eaten by orcas (and roll again at this station)
3. 2/3 are caught by people in a fishing boat
4. 1/2 are eaten by an orca

5. 1/2 are eaten by sharks
6. 1/3 are eaten by porpoises

Stage 7 - As a fully grown adult salmon, you start heading back from the ocean to the river you came from.

Dice rolls:

1. 2/3 are caught by people in fishing boats
2. 1/3 are eaten by seals (and roll again at this station)
3. 1/2 are eaten by osprey
4. 2/3 are eaten by orcas
5. 1/3 are caught by seals
6. 1/2 get caught by people in fishing boats

Stage 8 - You follow your sense of smell farther and farther up, looking for the stream where you hatched.

Dice rolls:

1. 3/4 get eaten by eagles
2. 1/2 cannot find their way over a dam
3. 1/2 are caught by bear
4. 2/3 are eaten by bear
5. 2/3 cannot swim up a waterfall
6. 1/2 get lost at the dam (and roll again at this station)

Stage 9 - Finally, you reach the stream where you hatched. You're so close! If you can get all the way home, you will spawn (lay eggs).

Dice rolls:

1. 1/2 are so tired they stop
2. 3/4 get eaten by eagles

3. $\frac{2}{3}$ get eaten by bear
4. $\frac{2}{3}$ cannot jump over the waterfall
5. $\frac{1}{2}$ get eaten by raccoons
6. $\frac{1}{2}$ get eaten by bear (and roll again at this station)