

## TEST THE WATER

### (Teacher's Guide)

Be an Aquarist: Test the water conditions to find which tank is suitable for your fish.

#### Before you start:

Set up 4 tanks with the parameters detailed below. You could either have 4 master tanks or give 4 small containers to each group. Label them 1-4.

Split the students up into groups of 4, each with some fish fact files and water testing equipment.

	Tank 1	Tank 2	Tank 3	Tank 4
Temperature (°C)	22-28	22-28	10-15	10-15
pH	6.5-7.5	8.0 - 8.4	6.5-7.5	8.0-8.4
Salinity (ppt)	0	35	0	35

#### What you'll need:

- 4 water containers or tanks
- Vinegar
- Salt
- Fish fact-files
- Data sheet
- Testing kit (litmus paper, salt detector, thermometer)

#### Step 1 – Test the water

Use 'Activity 1' data sheets to record conditions in each tank. The students must work together to fill in their data sheets with the temperature, pH level and salt concentration for each of the tanks. Swap jobs and also check results are correct.

#### Step 2 – Match up the fish fact files

By looking at the fish fact-files students must find which conditions are suitable for which fish species and complete the data sheet. For example, if a fish lives in the sea it needs salt, if it lives in a lake then it needs freshwater. Are the fish tropical species which like heat or not? Do they survive in acidic or alkaline conditions?

#### Step 3 – Sea of Change

Focusing on one species discuss the importance of each of the environmental conditions (salt, pH, temperature). What would happen if the environmental conditions change? Use different research methods including books, internet & speaking to experts to find out.



### Step 4 – Aquarium Activity: What do fish need?

Using 'Activity 2' data sheets, students can collect information and record details about different species and their habitats. If you are at the zoo, students can do first hand research by walking around the aquarium. If you aren't in the zoo, students can use the internet or books to research new species to complete the table.

### Step 5 - Make your own fish tank

This is where students need to get creative! After they have found a home for all the fish by considering the requirements for different habitats, they can use 'Activity 3' data sheets to design their own tank. What else do you have to consider? Are they social fish that like to live in large shoals or not? Do they like hiding in rocks or plants? Which fish could live in the same habitats? Look at the colours in our aquarium too!

Research a new fish species and design the perfect habitat for them.

We would love to see what your students come up with!

Remember to share your class' work on our Twitter page. We'd love to see it!

@LearnatCZ

### Things to think about afterwards...

Ask your students what they think will happen to the fish if the environmental conditions change:

- If the temperature rises?
- If the water becomes more acidic?

What would happen to the food chain and ecosystem?

### Extension Activities!

Have a look at the videos and other resources at [chesterzoo.org/learning](https://chesterzoo.org/learning) which compliment this activity and find out how even small changes in water conditions can impact the species living in it. These activities can link to environmental topics, food chains and geography.