

**Packet is available to be downloaded here:**

<http://sites.nicholas.duke.edu/superfund/education-and-outreach/resources-for-educators/>

This packet is meant to supplement a lesson plan covering the topic of adaptation and contains the following resources:

1. Worksheet – the worksheet contains a story describing the process of adaptation within a population of fish in the Elizabeth River and includes related questions to encourage students to think critically about adaptation.

*Time: approximately 15 minutes if done independently, longer if done in groups.*

2. Activity/Game – this activity or game is a role-playing exercise in which students explore the process of adaptation as if they were fish adapting to their environment.

*Time: recommended to play for at least 10 minutes (including instructions).*

3. Factsheet – this factsheet provides fun facts about the mummichog, a type of fish living in the Elizabeth River, and includes a removable bookmark.

## **Related Standard of Learning**

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### **Standard 4.5a, Strand: Living Systems**

“The student will investigate and understand how plants and animals, including humans, in an ecosystem interact with one another and with the nonliving components in the ecosystem. Key concepts include

- a) plant and animal adaptations;
- b) organization of populations, communities, and ecosystems and how they interrelate;
- c) flow of energy through food webs;
- d) habitats and niches;
- e) changes in an organism’s niche at various stages in its life cycle; and
- f) influences of human activity on ecosystems.”

### **Essential Knowledge, Skills, and Processes addressed by the resources**

- Investigate and infer the function of basic adaptations;
- Understand that adaptations allow an organism to succeed in a given environment; and
- Explain how different organisms use their unique adaptations to meet their needs.

### **Learning outcomes**

The learner will:

- Be able to define adaptation
- Be able to define fitness costs
- Understand how adaptation affects the Elizabeth River
- Connect his/her experience on the Elizabeth River Project’s learning barge to the concept of adaptation