ONPRC Module 3B: Assisted Reproductive Technologies (ART)

Guiding Question:
How can we use assisted reproductive technologies to preserve the endangered species?

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| How does learning about fertilization, embryonic development and assisted reproductive technologies create options for preserving fertility? | • How does fertilization happen in humans, in vivo and in vitro? Is it the same process in other non-human primates?  
• How do embryos develop?  
• How can we monitor pregnancy using ultrasound? |

Learning Outcomes:

Describe the process of fertilization.

Describe embryonic and early fetal development.

Describe assisted reproductive technologies (artificial insemination, in vitro fertilization, intracytoplasmic sperm injection).

Describe how assisted reproductive technologies can help preserve endangered species.

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In Vitro Fertilization Monkeys

Drawing: Dr. Joel Ito, ONPRC
Cartoon: Microsoft Clip Art
In Vitro Fertilization Monkeys

Shiver

First Rhesus monkey in the world born from in vitro fertilization, frozen-thawed embryo, 1988

Photo: ONPRC

Cartoon: Microsoft Clip Art
In Vitro Fertilization Monkeys

Arnold and Danny

First Rhesus monkey twins in the world born from in vitro fertilization, frozen-thawed embryos, 2003

Photo: ONPRC

Cartoon: Microsoft Clip Art
**In Vitro Fertilization Gorilla**

- Timu was the first Western lowland gorilla in the world born from *in vitro fertilization*, Cincinnati Zoo, 1996

- Now lives Henry Doorly Zoo, Omaha, Nebraska

- Had her own babies in August 2003 and in April 2005

Photo: Courtesy of Cincinnati Zoo

Cartoon: Microsoft Clip Art
Orangutans are among the species whose populations are declining due to human activity.

*In vitro fertilization* can be used to help bolster populations of endangered species.