

# The ART of Reproductive Medicine Curriculum Outline

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## 1. Introduction to ART of Reproductive Medicine

Introduction to ART of Reproductive Medicine, Parts 1 & 2 – PowerPoints

Outline for ART of Reproductive Medicine Curriculum

Outline for ART of Reproductive Medicine Curriculum – PowerPoint

## 2. Mitosis

Mitosis – Teacher Background

Mitosis – PowerPoint

Mitosis Lab –A Relationship between Diffusion and Cell Size – Student Version

Mitosis Lab –A Relationship between Diffusion and Cell Size – Teacher Notes

Scientific Papers on Mitosis

Additional Resources on Mitosis

NGSS Alignment for Chapter 2

## 3. Cancer

Cancer – Teacher Background

Cancer, Parts 1 & 2 – PowerPoints

Cancer Lab BRCA – Teacher Background on BRCA Genes

Cancer Lab BRCA – PowerPoint on BRCA Genes

Cancer Lab BRCA - DNA Bioinformatics Study to Locate BRCA Cancer Genes – Student Handout

Cancer Lab BRCA - DNA Bioinformatics Study to Locate BRCA Cancer Genes – Teacher Notes

BRCA1 -- Normal Sequence

BRCA1 – Test Patient A

BRCA1 – Test Patient B

BRCA1 – Test Patient C

BRCA1 – Test Patient D

BRCA1 – Test Patient E

Cancer Lab p53 – Teacher Background on p53 Tumor Suppressor Protein

Cancer Lab p53 – PowerPoint on p53 Tumor Suppressor Protein



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Scientific Papers on Cancer  
Additional Resources on Cancer  
NGSS Alignment for Chapter 3

#### **4. Cancer Treatment and the Effect on Reproduction**

Treatment of Cancer and the Effect on Reproduction – Teacher Background  
Treatment of Cancer and Possible Side Effects, Parts 1 & 2 - PowerPoints  
Scientific Papers on Cancer Treatment  
Additional Resources on Cancer Treatment  
NGSS Alignment for Chapter 4

#### **5. Meiosis**

Meiosis – Teacher Background  
Meiosis, Parts 1 & 2 – PowerPoints  
Scientific Papers on Mitosis  
Additional Resources on Mitosis  
NGSS Alignment for Chapter 5

#### **6. Female and Male Reproductive System**

Female and Male Reproductive System – Teacher Background  
Female and Male Reproductive System, Parts 1, 2, 3, & 4 - PowerPoints  
Using ELISA to Measure Concentrations of Sex Hormones – Teacher Background  
Enzyme-Linked ImmunoSorbant Assay (ELISA) – PowerPoint  
ELISA Dry Lab - Graphs and Explanations of Female Infertility - Powerpoint  
Female Reproduction – ONPRC Modules 1A & 1B - Student Handouts  
Hematoxylin & Eosin (H & E) Ovary ONPRC Staining Lab – Student Handout  
Hematoxylin & Eosin (H & E) Tissue ONPRC Staining Lab – Teacher Notes  
Male Reproductive Tract – ONPRC Module 2 - Student Handout  
Scientific Papers on Reproductive Systems  
Additional Resources on Reproductive Systems  
NGSS Alignment for Chapter 6

#### **7. Pregnancy**

Pregnancy – What is Normal, What Can Go Wrong, and How Can We Assist Infertile Couples? –  
Teacher Background  
Pregnancy – What is Normal, What Can Go Wrong, and How Can We Assist Infertile Couples?  
Parts 1, 2, 3, & 4 – PowerPoints



Assisted Reproductive Technologies (ART) ONPRC Modules 3A & 3B – Student Handouts  
Scientific Papers on Pregnancy and ART  
Additional Resources on Pregnancy and ART  
NGSS Alignment for Chapter 7

## **8. Cryobiology**

Cryobiology – Teacher Background  
Cryobiology Lecture on Fertility Preservation, ONPRC, Parts 1, 2, & 3 – PowerPoints  
Cryobiology Lecture on Endangered Species Preservation, ONPRC – PowerPoint  
Cryobiology Lab ONPRC Module 4A High School on Fertility Preservation – Student Handout  
Cryobiology Lab ONPRC Module 4B High School on Endangered Species Preservation –  
Student Handout  
Cryobiology Lab ONPRC Module 4C Middle School on Endangered Species Preservation –  
Student Handout  
Cryobiology Lab – Dry Lab PowerPoint  
Cryobiology Lab Modules 4A, 4B, 4C on Fertility Preservation - Teacher Notes  
Scientific Papers on Cryobiology  
Additional Resources on Cryobiology  
NEA 5E Learning Cycle Lesson Plan on Cryopreservation  
NGSS Alignment for Chapter 8

## **9. Fertility Preservation Options for Cancer Patients Under 40 Years Old**

Fertility Preservation Options – Teacher Background  
Fertility Preservation Options, Parts 1, 2, & 3 – PowerPoints  
Alginate Lab ONPRC Module 5 – Student Handout  
Alginate Lab ONPRC Module 5 – Teacher Notes  
Scientific Papers on Fertility Preservation  
Additional Resources on Fertility Preservation  
NEA 5E Learning Cycle Lesson Plan on Alginate Lab  
NGSS Alignment for Chapter 9

## **10. Stem Cells**

Stem Cells – Teacher Background  
Stem Cells – PowerPoint  
Student Labs on Stem Cells with Teacher Notes



Scientific Papers on Stem Cells  
Additional Resources on Stem Cells  
NGSS Alignment for Chapter 10

### **11. Ethical Frameworks**

Ethics and Science Lecture – PowerPoint  
Ethics Lab Case Studies ONPRC Module 6 – Student Handout  
Scientific Paper on Ethical Frameworks  
Additional Resources on Ethical Frameworks  
NGSS Alignment for Chapter 11

### **12. Epigenetics**

Epigenetics and Inheritance - Teacher Background  
Epigenetics and Inheritance, Parts 1, 2, 3, & 4 - PowerPoints  
Scientific Papers on Epigenetics  
Additional Resources on Epigenetics  
NGSS Alignment for Chapter 12

### **13. Student case studies and poster presentations**

Patient Report Instructions  
Patient Profiles  
Poster Topics and Reliable Resources for Poster Topics  
Poster Instructions  
A Quick Poster Checklist  
Scientific Paper on Patients Profiles and on Posters

### **14. Biomedical Careers**

Biomedical Careers – PowerPoint  
Finding Your Future – iBIO Institute  
Scientific Papers on Biomedical Careers  
Additional Resources on Biomedical Careers

### **15. Additional Teacher Resources**

Saturday Academy Pre-Survey  
Saturday Academy Student Pre- and Post-Test  
Teacher Notes for Pre- and Post- Tests  
Additional Suggested Equipment

