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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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 3

5. Meiosis

Meiosis – Teacher Background
Meiosis, Parts 1 & 2 – PowerPoints
Scientific Papers on Mitosis
Additional Resources on Mitosis
NGSS Alignment for Chapter 4

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 5

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
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