ART of Reproductive Medicine Curriculum

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- **Introduction to ART of Reproductive Medicine** – define fertility and causes of infertility
- **Mitosis** – slides showing stages of mitosis, cell size & rate of diffusion lab
- **Cancer treatment and the effect on reproduction** – how chemotherapies and radiation affect reproductive tissues
- **Meiosis** – slides showing stages of meiosis
- **Female and male reproductive system** – ELISA assays, staining of ovarian tissue, and dissection of female and male mice
- **Pregnancy** – what is normal, what can go wrong, and how can we assist infertile couples? – ultrasound images, sea urchin egg fertilization and development, assisted reproductive technologies (ART) - IVF, ICSI
- **Cryobiology** – slow freezing vs vitrification, time reduced motility by frozen and thawed sperm, vitrification lab, compare structures in fresh and frozen tissue slides, unthawing of female and male tissue
Fertility preservation options for cancer patients under 40 years old – current technologies for female and male cancer patients under 40 years old prior to receiving chemotherapy, radiation therapy, and bone marrow treatment, alginate lab, implantation, S1P studies in non-human primates

Stem Cells - application to oncofertility, ethical issues associated with stem cell research, stem cell lab activities

Ethical frameworks – PowerPoint from ONSEN ethicist, ethical issues of assisted reproductive technologies (ART)

Epigenetics – effect of epigenetics on cancer and other human diseases and inheritance

Student case study and poster presentations – suggestions for patient profile and report, poster topics, and web resources

Biomedical Careers – explore careers that support biomedical research

Additional teacher resources – pre-survey, pre-and post-tests, additional suggested equipment