

The *Pharmacology CPU* introduces students to both the therapeutic and research and design aspects of pharmacology. Students discover the nursing process of drug therapy and explore proper drug administration, common adverse effects, and various types of drugs. Students also explore the drug pipeline and examine how a new drug travels from laboratory testing to FDA approval.

Students also research the history of pharmacology and drug regulations and how historical developments affect modern pharmacology. Students examine how incidents such as the Elixir Sulfanilamide and Thalidomide tragedies influenced drug laws and the FDA.

Areas Covered

- ◆ The processes of drug development and FDA approval
- ◆ Using the PDR to research both general drug classes and specific drugs
- ◆ New and emerging technologies in pharmacology
- ◆ Novel methods of administration and their benefits
- ◆ Calculating dosages and other formulas common in pharmacology
- ◆ Understanding aspects of the nursing process as it relates to pharmacology, including:
 - Contraindications
 - Drug and food interactions
 - Dietary supplements and drug therapy
 - Proper patient education
- ◆ Skills and knowledge to aid students in various HOSA competitions



Career Pathway Unit Includes:

Pharmacology CD and Instructor's Overview Booklet, Ampicillin, Bacteria Voucher – *Bacillus Cereus*, Bacteria Voucher – *E. Coli*, Butane Burner, Chloramphenicol, Clinical Pharmacology Textbook, Forceps, Gentamicin, Incubators, Skills Cart™, Medical Dictionary, Mortar and Pestle, Nutrient Agar, PDR Nurse's Drug Handbook, Penicillin, Streptomycin, Synthesis of Aspirin Kit, Tetracycline, Worksheets

Pharmacology Goals & Activities

- Discover basic terms associated with pharmacology.
- Distinguish between pharmacy and pharmacology and the subdivisions of each field.
- Explore laws and regulations governing pharmacists, pharmacy aides, and pharmacy technicians.
- Review pathogens and disease.
- Examine discovery medicine.
- Research medications discovered over a hundred years ago that are still used today.
- Conduct an experiment to determine the age of aspirin.
- Explore the sections and usage of a PDR.
- Use a PDR.
- Extract and synthesize aspirin from willow bark.
- Examine drugs to relieve pain.
- Determine principles of drug administration.
- Explore the benefits of novel drug administration.
- Discover new and potential methods of drug administration.
- Review arithmetic necessary for dosage calculations.
- Discover the systems of measurement used in pharmacology and how to convert between systems.
- Discover formulas commonly used in pharmacology.
- Compute oral dosages of tablets, capsules, and liquid drugs.
- Calculate parenteral doses of drugs.
- Calculate dosages based on weight.
- Convert temperatures between Fahrenheit and Celsius.
- Calculate pediatric dosages.
- Review Roman numerals.
- Examine abbreviations used in pharmacology.
- Discover the elements of a prescription and the American Medical Association's recommendations for prescription writing.
- Determine how safety features are used to avoid fraudulent prescriptions.
- Interpret prescriptions and drug labels.
- Explore anti-infective drugs.
- Explore the history, usage, and action of antibiotics.
- Conduct an experiment to test antibiotic sensitivity.
- Examine antiviral and antifungal drugs.
- Consider the popularity of dietary supplements and their potential effects on prescription medicines.
- Determine how the FDA evaluates drugs for approval.
- Consider the differences between observational and experimental studies and determine how each is used.
- Investigate clinical trials.
- Examine the phases of clinical trials and determine what information is gathered during each phase.
- Determine what programs the FDA has implemented to speed the availability of new drugs to critically ill patients.
- Examine topical drugs.
- Explore otic and ophthalmic drugs.
- Conduct research to identify a problem related to pharmacology that is of immediate local importance.



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