

## **Agriculture, Food & Natural Resources Cluster**

### **Plant and Soil Science Pathway –**

**Agri Technology** – This major gives students an overview of new trends in agricultural technology including biotechnology and biofuels. Students study laboratory safety/techniques/proper procedures with hands-on applications both in the lab and in the field as well as more in-depth study of in vitro DNA synthesis reactions and programming, protein extraction and analysis, ELISA (Enzyme-Linked ImmunoSorbent Assay) technology, and maintenance of animal cell lines. Curriculum includes ethical issues, botany, and quality control of biofuels with an emphasis in ethanol and biodiesel development and production.

**Horticulture Plant and Soil Science** – This major provides students an overview of agriscience, horticulture, greenhouse production and floral design, landscape and nursery production, and biological plant science and of careers available. Students are given an introduction at the ninth grade level to agriculture, natural resources, animal/plant science, and agribusiness principles and careers. The instruction is grounded in a strong scientific base of botany and soils. Curriculum continues with in-depth studies of principles and applications of ornamental horticulture, propagation techniques, plant nutrition, disease and pest management, and business management as well as higher-level science-based plant agriculture including biotechnology and other emerging technologies. Supervised agricultural experience and FFA are an integral component in this major.

**Agronomic Plant and Soil Science** – This major gives students an overview of agriscience, plant and soil science, crop production, and biological plant science and of careers available. Students are given an introduction at the ninth grade level to agriculture, natural resources, animal/plant science, and agribusiness principles and careers and then in-depth studies of plant propagation, culture, and disease and pest management. The instruction is grounded in a strong scientific base of botany and soils. Curriculum includes sustainable practices in crop systems including irrigation and resource conservations, remote sensing information, record keeping, and farm management techniques as well as higher-level science-based plant agriculture including biotechnology and other emerging technologies. Supervised agricultural experience and FFA are an integral component in this major.

**Horticulture (T&I)** – This major prepares students as horticultural assistants who undertake a range of tasks to do with cultivation, growing, harvesting and maintenance of trees, plants and gardens. Students learn safe practices, use of tools and equipment, propagation and care of plants, soil testing, and preparation and safe application of chemicals. Included is information concerning construction, operation, and management of greenhouses.

**Floriculture Design Assistant (T&I)** – This major prepares students as assistants in the floriculture design industry who undertake a range of tasks related to designing, cutting and arranging live, dried or artificial flowers and foliage. Students will be instructed in

the safety practices, tools and equipment and the care, selection and harvest of flowers for arrangements with an emphasis in wedding and sympathy floral design. Included are distribution processes and retail flower shop operations and careers.

**Service Careers Landscaper's Assistant (T&I)** – This major introduces students enrolled in the Service Careers majors to the safety practices, tools and equipment, and skills required to work as an assistant in the landscaping industry. Students learn grounds keeping duties such as pruning, edging, mowing, soil preparation, mulching and seasonal applications. Included is training in operation of tools and equipment such as lawn mowers and tractors, ZTR, verticut machines, chippers, aerators, and sprayers and spreaders.

**Service Careers Horticulture Assistant (T&I)** – This major introduces students enrolled in the Service Careers majors as horticultural assistants who undertake a range of tasks to do with cultivation, growing, harvesting and maintenance of trees, plants and gardens. Students learn safe practices, use of tools and equipment, propagation and care of plants, and soil testing and preparation. Included is information concerning construction, operation and management of greenhouses.

**Plant and Soil Sciences Workforce Transition** – This major will be used for all Individualized Cooperative Education (ICE) programs to build their training outline. Students will focus on employability skills while receiving hands-on experience in plant and soil services. Included is a work-site experience (WSE) where students develop proficiency skills unique to a given occupation along with a formal mentoring program designed to accelerate an individual student's skill development.