

# Career & Technology

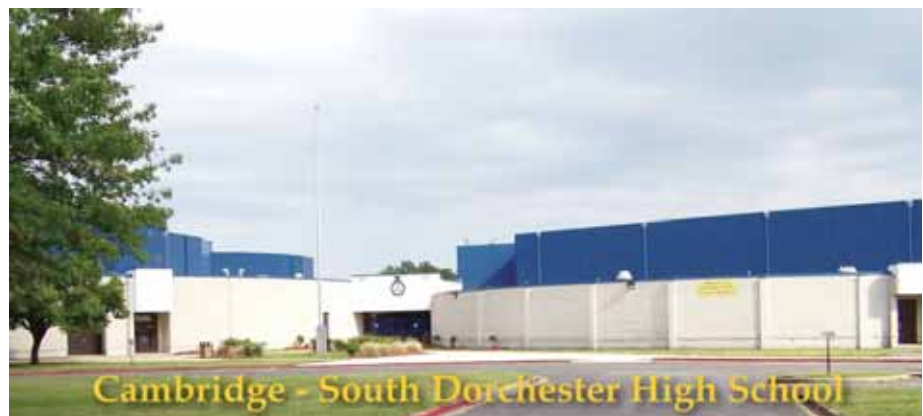


## Career Clusters

- Construction
- Consumer Services
- Information Technology
- Transportation



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## Auto Mechanics

## Transportation

The Auto Mechanics program is Automotive Service Excellence (ASE) certified and meets NATEF standards for 4 areas: Brakes, Steering and Suspension, Engine Performance, and Electricity/Electronics. Students will be involved in classroom and shop activities leading to ASE certification, post-secondary education, and/or employment in an automotive/mechanical related field. Students will practice basic concepts of Science, Mathematics, and Chemistry as they pertain to the automotive field. Shop work will mirror the industry standards for automobile repair.

Additional skills taught include estimating repair costs, precise measurement, research techniques, job placement skills, and machining.

Articulation agreements for advanced credit are in place with the Community College of Baltimore County-Catonsville and Northwestern University of Ohio.

**Program Sequence: Cluster, Intro to Mechanics, Auto Mechanics I, Auto Mechanics II**

*Mr. Michael Perry, Instructor: Automotive Service Excellence Certified*



## Diesel/Marine Mechanics

## Transportation

The Diesel and Marine Mechanics program is designed to prepare students for entry-level employment in the diesel/marine mechanics field or successful entry into a post-secondary educational institution or trade school.

Students will work with electrical/electronic engine systems, diesel engines, transmissions, differentials, brakes, hydraulic systems, suspension and steering, preventive maintenance inspections, and outboard boat motors. Additionally, students will learn the safe operation of forklifts and trucks.

The program is currently seeking NATEF certification which is scheduled to be completed by the fall of 2007. Once certified, students successfully completing the program will be eligible to pursue ASE certification in Diesel Engines, Brakes, Suspension and Steering, Electrical/Electronic Systems and Preventive Maintenance Inspection.

**Program Sequence: Cluster, Intro to Mechanics, Diesel I, Diesel II**

*Mr. Gregory Insley, Instructor: Automotive Service Excellence Certified*



# Collision Repair

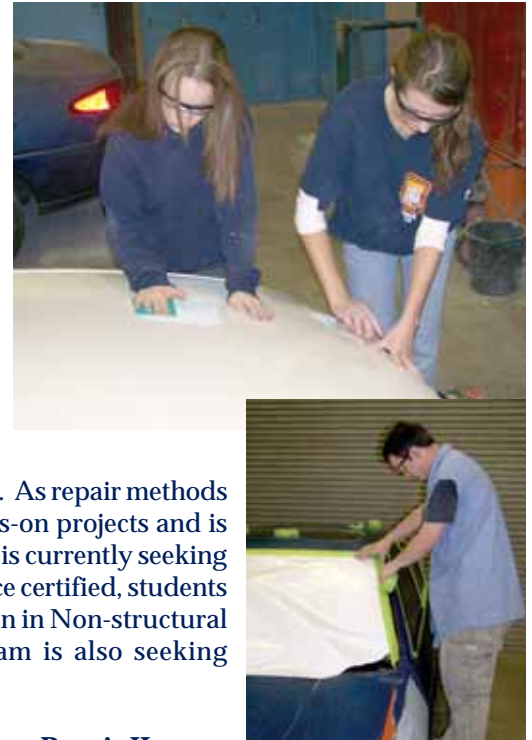
## Transportation

The Collision Repair program is designed to prepare students who are interested in careers in the collision repair industry. Learning opportunities develop academic, technical, and professional knowledge, and skills required for job acquisition, retention, and advancement.

Initial skills to be taught will be safety, tools, surface preparation, metal straightening, sanding/grinding, filler application, masking, and spray techniques.

Advanced skills include body and frame construction, panel replacement and alignment, door hardware, interior, trim and glass replacement, plastic repairs, corrosion protection, MIG welding, estimating, refinishing, and detailing, with math and measuring emphasized in all units. Great importance is placed on safety and strategies for protecting the worker and the environment. Work ethics and good work habits are also stressed. The Collision Repair program curriculum is directly related to trade standards and employment opportunities. As repair methods change, the curriculum is continually updated. It combines theory and hands-on projects and is being supplemented with I-CAR's enhanced delivery programs. This program is currently seeking NATEF certification, which is scheduled to be completed by the fall of 2007. Once certified, students successfully completing the program will be eligible to pursue ASE certification in Non-structural Analysis and Damage Repair and Painting and Refinishing. The program is also seeking articulation with community colleges and trade schools.

**Program Sequence: Cluster, Intro to Mechanics, Collision Repair I, Collision Repair II**  
*Mr. Rex Marshall, Instructor: Automotive Service Excellence Certified and I-CAR Certified*



# Carpentry

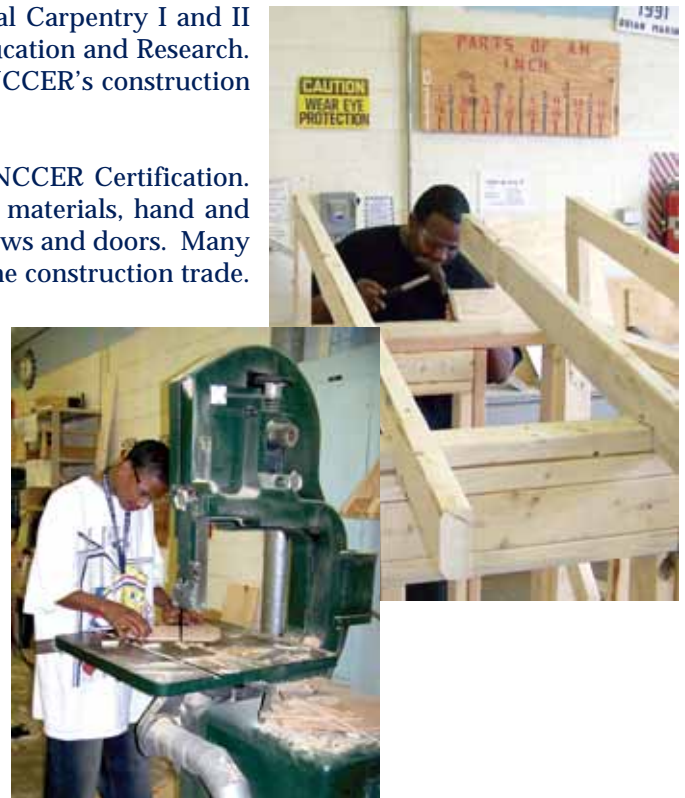
## Construction

The Carpentry program meets the standards for the Residential Carpentry I and II programs certified by the National Center for Construction Education and Research. The prerequisite Core program is the base program for all of NCCER's construction programs.

Students are involved in classroom and lab work leading to NCCER Certification. Carpentry I areas of study include orientation, wood building materials, hand and power tools, concrete work, wood and steel framing, and windows and doors. Many math and science concepts are practiced as the students learn the construction trade. Safety and good job skills are emphasized in all classes.

Carpentry II continues with the studies of reading blueprints, site layout, roofing, and interior finish. Upon successful completion of written and practical exams students will be certified and their names placed on NCCER's national registry to which many construction companies refer when hiring.

**Program Sequence: Cluster, Core, Carpentry I, Carpentry II**  
*Mr. Roger Hearn, Instructor: NCCER Certified*



# Electricity

## Construction

The Electricity program is designed to prepare students for entry-level work, an apprenticeship program, or a post-secondary trade school. While enrolled in the program, students will recognize the importance of meeting safety requirements in the many areas of electricity. Students will be involved in a variety of electrical activities including the planning and laying out of circuits, estimating, blueprint reading, repairing appliances, troubleshooting circuitry, utilizing various electrical meters/testers, installing various wires and cables, and installing various conduits and raceways. All work performed in the electrical program will comply with the current National Electrical Code. Upon successful completion of the program, students could possibly seek employment as a residential electrician, cable TV installer, telephone installation technician, utility line worker, electrical supplies salesman, or appliance repair technician.

**Program Sequence: Cluster, Core, Electricity I, Electricity II**  
*Mr. Daniel Insley, Instructor: NCCER Certified*



# Heating, Ventilation and Air Conditioning (HVAC)

## Construction

Instruction emphasizes the development of basic entry level skills needed for the installation and service of HVAC systems including; tools of the trade, ductwork, basic electricity, plumbing, pipefitting, refrigerant handling, soldering and brazing, and principles of fossil fuel heat, air conditioners and heat pumps, duct system design, control circuits, and installation, maintenance and troubleshooting of air conditioners, heat pumps and fossil fuel boilers and furnaces.

Students will experience “real-life” situations in the maintenance and repair of relevant equipment in school system facilities when practical.

Successful students will obtain EPA certification and will also receive credit towards certification by the National Center for Construction Education and Research (NCCER – a nationally recognized apprenticeship education program) for each module successfully completed.

Upon successful completion, students may seek entry level employment in a number of relevant areas including; HVAC, plumbing, maintenance, as well as wholesale and retail sales of plumbing and HVAC equipment.

Students will be eligible for employment references commensurate with the skills demonstrated while participating in the program.

**Program Sequence: Cluster, Core, HVAC I, HVAC II**  
*Mr. Tim Gavigan, Instructor: Environmental Protection Agency Certified and NCCER Certified*



# Masonry

The Masonry program provides instruction in laying concrete block and brick, composite walls, chimneys and fireplaces, concrete pouring/finishing, using hand tools, power tools, and equipment applicable to the masonry trade. Other topics include the different types of mortar mixes, their strengths and uses, reinforcement of masonry walls, masonry cleaning, weather protection for masonry, and estimating supplies and materials. Students in Masonry will learn to read blueprints and use mathematics of the trade. A mason also needs to possess average or above average strength and stamina, as masonry work frequently requires lifting of heavy units of material repeatedly for extended periods of time. The Masonry program combines classroom training and job site experience so that upon graduation, students should perform at a level equivalent to a masonry apprentice with six months of experience. The program is certified by the National Center for Construction Education and Research (NCCER). For students who successfully complete the training, the NCCER offers national recognition with entry into the National Craft Registry.

## Construction



**Program Sequence: Cluster, Core, Masonry I, Masonry II**

*Mr. Carnell Johnson, Instructor: NCCER Certified*

# Welding

The Welding program conforms to national skills standards as set forth in the American Welding Society's (AWS) Schools Excelling through National Standards Education program (SENSE) and the Contren Learning series developed by the National Center for Construction Education and Research (NCCER).

## Construction



The Welding curriculum is a competency-based program which is designed to build a solid foundation in the basics of the major welding processes. Through a variety of hands-on activities, students gain practical knowledge and develop skills in shielded metal arc welding (SMAW), gas metal arc welding (GMAW), gas tungsten arc welding (GTAW), oxy-fuel cutting, brazing, air carbon arc gouging, plasma arc cutting, metallurgy, print reading, welding symbols, shop mathematics, layout, and fabrication. Students who successfully complete the Level II program will receive NCCER certification and are eligible to take the AWS Structural Welding Code D1.1.02 Certification Test which will better prepare them for career and post-secondary educational opportunities. General safety practices are stressed throughout all modules of instruction.

**Program Sequence: Cluster, Core, Welding I, Welding II**

*Mr. Ray O'Brien, Instructor: American Bureau of Shipping Certified and American Welding Society Certified and NCCER Certified*

# Culinary Arts

The Culinary Arts program introduces students to the daily operation of a commercial food service establishment. Instruction is given in basic skills and theory necessary to prepare simple foods. Safety and Sanitation regulations are enforced to maintain county health codes.

## Consumer Services



Students practice basic food preparation skills while learning menu planning, cost control techniques, management techniques and employability skills. Students will prepare a professional portfolio emphasizing their culinary abilities. Students have the opportunity to become ServSafe Food Safety Certified by taking and passing the certification test. This program is in the process of working toward certification through the American Culinary Federation, which is scheduled for completion in October of 2007. Students who successfully complete this program are eligible to receive advanced placement credit from Chesapeake College and Baltimore International College.

**Program Sequence: Culinary Arts I, Culinary Arts II, Culinary Arts III**

*Ms. Charlene Zinnel, Instructor: American Culinary Federation Certified and National Restaurant Association Certified*

# Horticulture

The Horticulture program is designed for the student interested in plant and environmental science. This program is competency based which provides the student with the skill set required for employment in landscape design, greenhouse management, plant nursery management, garden center ownership or management, florist design, ownership or management, golf course and turf management, natural habitat restoration, wildlife management, and stream and pond restoration. Instruction and lab exercises concentrate on soil and water management, plant nutrition, plant identification, florist design, landscape drawing, greenhouse production, weed identification, pesticide application, habitat restoration, scientific research and data collection.

Classroom instruction is entirely computer based. Successful students take part in the FFA Student Agricultural Organization's regional and state Envirothon competition.

**Program Sequence: Horticulture I, Horticulture II, Horticulture III**  
*Mr. Ronald DeClement, Instructor: AA Forestry, BS Horticulture, and MS Plant Physiology*

# Consumer Services



# Medical Services

The Medical Services program is designed to prepare students for entry-level work as a CNA in the health care field or post-secondary education.

Students learn about basic needs of the patient, structure and function of the human body, normal growth and development, diseases and disorders of the human body and basic patient care skills. Students learn about privacy and confidentiality of health information and infection control procedures. Students learn through teacher-led activities and practice in the laboratory setting. Skills are enhanced through clinical practice at local nursing homes, hospitals, and other community-based health care facilities. Fingerprint and criminal background checks are completed during the course. Students qualify for Nursing Assistant Certification with the Maryland Board of Nursing by completing the four-credit program. Students also qualify to take the State Examination for certification as a Geriatric Nursing Assistant. Other certifications offered include First Aid and CPR. Students are encouraged to continue other health care related occupation pathways offered at Chesapeake College and other post-secondary institutions.

**Program Sequence: Medical Services I (2 credits), Medical Services II (2 credits)**  
*Mrs. Carole Segar, Instructor: Registered Nurse, Maryland Board of Nursing Certified, American Health Association Certified, and National Safety Council Certified*

# Consumer Services



# Information Technology

The information and Technologies Management program is offered at both Cambridge-South Dorchester and North Dorchester High Schools. Students have the opportunity to pursue one of three pathways within the program:

## Accounting

In this pathway, students will learn to apply the basics of computer technology to perform accounting functions. Activities will include the use of integrated software, recording, and posting transactions, development of various financial statements, and the preparation of income statements, balance sheets, etc.



## Applications Support

In this pathway, students will learn the technical operations of computers. Course work will include a study of the various operating systems associated with computers, how to write and use the Visual Basic programming language, and how to design and develop Internet web pages.



## Technical Support

In this pathway, students will learn technical operation of computers. Course work will include a study of advanced computer applications, computer operating systems, hardware maintenance, hardware repair, and various configurations of computer networking.



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