VoCATS
Course Blueprints

Technology Education

8011 Principles of Technology I

Public Schools of North Carolina
State Board of Education • Department of Public Instruction
Office of Instructional and Accountability Services
Division of Instructional Services

Raleigh, North Carolina
Summer 1997

VoCATS Course Blueprint

A course blueprint is a document laying out the framework of the curriculum for a given course.

Shown on the blueprint are the units of instruction, the core competencies in each unit, and the specific objectives for each competency. The blueprint illustrates the recommended sequence of units and competencies and the weight or relative importance of the objective within the course or unit.

The blueprint is intended to be used by teachers in planning the course of work for the year, preparing daily lesson plans, and constructing instructionally valid assessments.

For additional information about this blueprint, contact program area staff. For additional information about the VoCATS Competency Achievement Tracking System, contact program area staff or VoCATS, Workforce Development, Division of Instructional Services, North Carolina Department of Public Instruction, 301 North Wilmington Street, Raleigh, North Carolina 27601-2825, 919/715-1674, email: rwelfare@dpi.state.nc.us.

Interpretation of Columns on VoCATS Course Blueprints

No.	Heading	Column information
1	Comp# Obj.#	Comp=Competency number (three digits); Obj.=Objective number (competency number plus two-digit objective number).
2	Unit Titles/ Competency and Objective Statements	Statements of unit titles, competencies per unit, and specific objectives per competency. Each competency statement or specific objective begins with an action verb and makes a complete sentence when combined with the stem "The student will be able to. . ." (The stem appears once in Column 2.) Outcome behavior in each competency/objective statement is denoted by the verb plus its object.
3	Time Hrs	Space for teachers to calculate time to be spent on each objective based on their individual school schedule and the students' performance on preassessments.
4	Course % Cognitive	A percentage indicates the relative importance or weight for cognitive learning of each objective within the total course. Information in Column 4 is used to plan the yearly calendar of work and as a test blueprint for assessments and postassessments. Column 4 plus Column 5 equals 100 percent..
5	Course % Perform	A percentage indicates the relative importance or weight for applied (performance) learning of each objective within a course. Information in Column 5 is used to plan the yearly calendar of work. Column 4 plus Column 5 equals 100 percent.
6	Type Behavior	Classification of outcome behavior in competency and objective statements. (C=Cognitive; P=Psychomotor; A=Affective)
7	Integrated Skill Area	Integrated Skills codes: A=Arts; C=Communications; H=Health/Safety; M=Math; SC=Science; SS=Social Studies.
8	Core Supp	Designation of the competencies and objectives as Core or Supplemental. Competencies and objectives designated Core must be included in the yearly calendar of work.

Activities and procedures within Workforce Development are governed by the philosophy of simple fairness to all. Therefore, the policy of Workforce Development is that all operations will be performed without regard to race, sex, color, national origin or handicap.

TECHNOLOGY EDUCATION
COURSE BLUEPRINT for **8011 PRINCIPLES OF TECHNOLOGY I**
[Recommended hours of instruction: 135-180]

Comp# Obj.#	Unit Titles/Competency and Objective Statements (the student will be able to:)	Time Hrs.	Course% Cognitive	Course% Perform	Type Behavior	Integrated Skill Area	Core Supp.
1	2	3	4	5	6	7	8
A	**FORCE**		**10%**	**8%**			
001.00	**Analyze and apply the concept of forces in mechanical systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
001.01	*Evaluate the effects of balanced and unbalanced forces.*		3%		*C3*	*SC|M*	*Core*
001.02	*Use laboratory equipment to solve mechanical problems.*			2	*C3P*	*SC|M*	*Core*
002.00	**Analyze and apply the concept of pressure in fluid systems.**		**2%**	**2%**	**C3P**	**SC|M**	**Core**
002.01	*Evaluate the effects of fluid pressure.*		2%		*C3*	*SC|M*	*Core*
002.02	*Use laboratory equipment to solve fluid pressure problems.*			2%	*C3P*	*SC|M*	*Core*
003.00	**Analyze and apply the concept of voltage in electrical systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
003.01	*Evaluate the effects of voltage difference.*		3%		*C3*	*SC|M*	*Core*
003.02	*Use laboratory equipment to solve voltage problems.*			2%	*C3P*	*SC|M*	*Core*
004.00	**Analyze and apply the concept of force in thermal systems.**		**2%**	**2%**	**C3P**	**SC|M**	**Core**
004.01	*Evaluate the effects of temperature difference.*		2%		*C3*	*SC|M*	*Core*
004.02	*Use laboratory equipment to solve problems in thermal systems.*			2%	*C3P*	*SC|M*	*Core*
B	**WORK**		**9%**	**6%**			
005.00	**Analyze and apply the concept of work in mechanical systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
005.01	*Evaluate relationships between force and distance.*		3%		*C3*	*SC|M*	*Core*
005.02	*Use laboratory equipment to solve mechanical work problems.*			2%	*C3P*	*SC|M*	*Core*
006.00	**Analyze and apply the concept of work in fluid systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
006.01	*Evaluate relationships between pressure and volume.*		3%		*C3*	*SC|M*	*Core*
006.02	*Use laboratory equipment to solve fluid work problems.*			2%	*C3P*	*SC|M*	*Core*
1	2	3	4	5	6	7	8

1	2	3	4	5	6	7	8
007.00	**Analyze and apply the concept of work in electrical systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
007.01	*Evaluate relationships between voltage and charge.*		*3%*		*C3*	*SC|M*	*Core*
007.02	*Use laboratory equipment to solve electrical work problems.*			*2%*	*C3P*	*SC|M*	*Core*
C	**RATE**		**11%**	**7%**			
008.00	**Analyze and apply the concept of rate in mechanical systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
008.01	*Evaluate relationships between distance and time.*		*3%*		*C3*	*SC|M*	*Core*
008.02	*Use laboratory equipment to solve mechanical rate problems.*			*2%*	*C3P*	*SC|M*	*Core*
009.00	**Analyze and apply the concept of rate in fluid systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
009.01	*Evaluate relationships between volume flow and time.*		*3%*		*C3*	*SC|M*	*Core*
009.02	*Use laboratory equipment to solve fluid rate problems.*			*2%*	*C3P*	*SC|M*	*Core*
010.00	**Analyze and apply the concept of rate in electrical systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
010.01	*Evaluate relationships between charge moved and time.*		*3%*		*C3*	*SC|M*	*Core*
010.02	*Use laboratory equipment to solve electrical rate problems.*			*2%*	*C3P*	*SC|M*	*Core*
011.00	**Analyze and apply the concept of rate in thermal systems.**		**2%**	**1%**	**C3P**	**SC|M**	**Core**
011.01	*Evaluate relationships between heat flow and time.*		*2%*		*C3*	*SC|M*	*Core*
011.02	*Use laboratory equipment to solve thermal rate problems.*			*1%*	*C3P*	*SC|M*	*Core*
D	**RESISTANCE**		**11%**	**7%**			
012.00	**Analyze and apply the concept of resistance in mechanical systems.**		**2%**	**1%**	**C3P**	**SC|M**	**Core**
012.01	*Evaluate the effects of friction and drag in mechanical systems.*		*2%*		*C3*	*SC|M*	*Core*
012.02	*Use laboratory equipment to solve mechanical resistance problems.*			*1%*	*C3P*	*SC|M*	*Core*
013.00	**Analyze and apply the concept of resistance in fluid systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
013.01	*Evaluate the effects of fluid resistance.*		*3%*		*C3*	*SC|M*	*Core*
013.02	*Use laboratory equipment to solve fluid resistance problems.*			*2%*	*C3P*	*SC|M*	*Core*
014.00	**Analyze and apply the concept of resistance in electrical systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
014.01	*Evaluate the effects of electrical resistance.*		*3%*		*C3*	*SC|M*	*Core*
014.02	*Use laboratory equipment to solve electrical resistance problems.*			*2%*	*C3P*	*SC|M*	*Core*
015.00	**Analyze and apply the concept of resistance in thermal systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
015.01	*Evaluate the effects of thermal resistance and conductivity.*		*3%*		*C3*	*SC|M*	*Core*
015.02	*Use laboratory equipment to solve thermal resistance problems.*			*2%*	*C3P*	*SC|M*	*Core*
1	2	3	4	5	6	7	8
E	**ENERGY**		**11%**	**7%**			
016.00	**Analyze and apply the concept of potential energy in mechanical and fluid systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**

016.01	*Evaluate the effects of potential energy.*		*3%*		*C3*	*SC|M*	*Core*
016.02	*Use laboratory equipment to solve potential energy problems.*			*2%*	*C3P*	*SC|M*	*Core*
017.00	**Analyze and apply the concept of kinetic energy in mechanical and fluid systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
017.01	*Evaluate the effects of kinetic energy.*		*3%*		*C3*	*SC|M*	*Core*
017.02	*Use laboratory equipment to solve kinetic energy problems.*			*2%*	*C3P*	*SC|M*	*Core*
018.00	**Analyze and apply the concept of potential energy in electrical systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
018.01	*Evaluate the effect of capacitance and inductance.*		*3%*		*C3*	*SC|M*	*Core*
018.02	*Use laboratory equipment to solve electrical energy problems.*			*2%*	*C3P*	*SC|M*	*Core*
019.00	**Analyze and apply the concept of energy in thermal systems.**		**2%**	**1%**	**C3P**	**SC|M**	**Core**
019.01	*Evaluate the effects of heat and energy transfer.*		*2%*		*C3*	*SC|M*	*Core*
019.02	*Use laboratory equipment to solve thermal energy problems.*			*1%*	*C3P*	*SC|M*	*Core*
F	**POWER**		**8%**	**5%**			
020.00	**Analyze and apply the concept of power in mechanical systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
020.01	*Evaluate the effects of mechanical power applications.*		*3%*		*C3*	*SC|M*	*Core*
020.02	*Use laboratory equipment to solve mechanical power problems.*			*2%*	*C3P*	*SC|M*	*Core*
021.00	**Analyze and apply the concept of power in fluid systems.**		**3%**	**2%**	**C3P**	**SC|M**	**Core**
021.01	*Evaluate the effects of fluid power applications.*		*3%*		*C3*	*SC|M*	*Core*
021.02	*Use laboratory equipment to solve fluid power problems.*			*2%*	*C3P*	*SC|M*	*Core*
022.00	**Analyze and apply the concept of power in electrical systems.**		**2%**	**1%**	**C3P**	**SC|M**	**Core**
022.01	*Evaluate the effects of electrical power applications.*		*2%*		*C3*	*SC|M*	*Core*
022.02	*Use laboratory equipment to solve electrical power problems.*			*1%*	*C3P*	*SC|M*	*Core*
	Course Total		**60%**	**40%**			