HS Home Maintenance
Technology Education

Course Description
A study of repairs that are commonly undertaken by the average homeowner. Hands on learning experiences may include dry wall, ceramic tile, house wiring, plumbing repairs, basic automotive maintenance, small engine repairs, woodworking, and cabinetry.

Scope And Sequence

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Course Rationale
This course is offered by the Park Hill School district to provide an introduction to the common repairs that arise from home ownership. These common repairs include drywall, electrical, plumbing, small engines, tile, concrete, along with some basic skills in the woodworking area. The home building unit will give the student an overview of house construction.

Enduring Understandings
That safety is of utmost importance in the use of tools and machines.
An understanding of how a house is built.
Basic home repairs can be made by the homeowner.
The woodworking processes and procedures to make a simple project.

Key Resources
Textbook: Home Repair and Maintenance by Jack Landers
Safety packet Instructor made: general, attitude, hand tools, power tools, and machine safety information
Safety videos by Shopware: band saw, drill press, jointer, table saw, thickness planer, router, belt and disc sander
Home building video: Shopware - Foundations to Roof and Plumbing to Paint
Fine Homebuilding Video workshop - Framing Floors & Stair, Framing Walls, and Framing Roofs
Hometime Videos Publishing - Home Evaluation

Board Approval Date
July 2012

Course Details

Unit: Orientation
Duration: 2 Day(s)

Unit Overview
Orientation to the class, classroom, and general procedures.

Enduring Understandings
The rules and procedures of this course help students be successful.

Essential Questions
How do I know what to do in this class?

Example Assessment Items
Give the steps for a fire drill.

Academic Vocabulary
Tools
Machines
Safety

Topic: Syllabus
Duration: 2 Day(s)
Learning Targets
The student will understand the basics of the class, class procedure, room layout, and safety drills.
The student will have a basic understanding of a home.

Unit: Safety machines, tools, and personal Duration: 15 Day(s)

Unit Overview
General, machine, tool, and personal safety will be addressed.

Enduring Understandings
Safety will be foremost in the students mind at all times.
Safety information will help from becoming involved in a serious injury.

Essential Questions
Why do I need to be aware of safety in the lab?
Why do I not to talk to an operator of a machine?
Why do I need to keep tools sharp?
Why is the way I dress important?

Example Assessment Items
Given an example of a hazard the student will tell how to correct the hazard.
Given a dull tool the student will tell what needs to be done.
Given a picture of a person the student will point out dangerous clothing.

Academic Vocabulary
Band saw
Table saw
Drill press
Lathe
Jointer
Miter saw
Router and router table
Safety areas
Machine speed
Feed speed

Topic: Machine, power tools, hand tools identification Duration: 15 Day(s)

Learning Targets
The student will be shown the machines, power tools, hand tools that are available in the lab.
The student will have a basic understanding of basic first aid safety.
The student will understand the general safety rules for the lab, tools, and machines.
The student will understand safety rules for the bandsaw.
The student will understand the safety rules for the bandsaw.
The student will understand the safety rules for the table saw.
The student will understand the safety rules for the jointer.
The student will understand the safety rules for the surfacer.
The student will understand the safety rules for the power miter box.
The student will understand the safety rules for the portable power tools.
The student will pass all safety test 100%

Unit: Manufacturing Duration: 35 Day(s)
**Unit Overview**
To use information learned in general lectures and safety units to build two woodworking projects.

**Enduring Understandings**
The purpose of a plan of procedure and why to follow it.
The use of the different tools and machines to make the project.
The purpose and how to apply finish to the project.

**Essential Questions**
How do I plan to make project?
Why are different tools used to cut the plywood?
How do I determine the type of finish to use on project?

**Example Assessment Items**
Given a simple project the student will write a plan of procedure.
The student will demonstrate how to use the bandsaw to cut a key holder.
The student will demonstrate how to finish the key holder.

**Academic Vocabulary**
- Dado joint
- Rabbet joint
- Ripping
- Cross cutting
- Resawing
- Aliphatic resin glue
- Bar clamp
- Plunge cut
- Danish oil

### Topic: Tree growth and the lumbering process
**Duration:** 35 Day(s)

**Learning Targets**
The student will understand the basic lumbering process and tree growth.

### Topic: Key holder
**Duration:** 0 Day(s)

**Learning Targets**
The student will understand the function of the plan of procedure, bill of material, and drawing for the key holder.
The student will construct the key holder.
The student will understand the purpose and technique of filing.
The student will understand the purpose and technique of sanding.
The student will understand the purpose and technique of finishing.

### Topic: Coat rack
**Duration:** 0 Day(s)

**Learning Targets**
The student will build the coat rack.

### Unit: Drywall
**Duration:** 5 Day(s)
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Unit Overview  
Cutting, hanging, mudding and repairing dry wall will be explored.

Enduring Understandings  
Patching a hole in drywall.  
Applying mud to hung drywall.

Essential Questions  
How do you patch a hole in sheet rock?  
How many coats of mud does it take to make a smooth joint?

Example Assessment Items  
Given a sheet rock trainer patch a hole that is in the sheet rock.  
Given the sheet rock trainer apply tape and mud to the joint.

Academic Vocabulary  
Dry wall  
Mud  
Sheet rock screw  
Blade  
Retractable knife  
Sheet rock saw  
Sheet rock tape  
Drywall saw

Learning Targets  
The student will understand how to cut, hang and mud drywall.  
The student will learn how to patch holes in concrete.

Unit: Electricity  
Duration: 5 Day(s)

Unit Overview  
This unit will give the student a basic understanding of the principles of wiring a house.

Enduring Understandings  
The home owner can change an electrical outlet or light receptacle with a little studying.  
That safety in working with electricity is crucial

Essential Questions  
How does one wire an outlet?  
How does one wire a light receptacle?  
How does one wire a GFCI?  
How does one wire a dimmer switch?

Example Assessment Items  
The student will demonstrate how to wire an outlet.  
The student will demonstrate how to wire a light receptacle.  
The student will demonstrate how to wire a GFCI.  
The student will demonstrate how to wire a dimmer switch.

Academic Vocabulary  
GFCI  
Black wire  
White wire  
Red wire  
Bare wire  
Voltage  
Amperage  
Insulation  
Breaker box

Learning Targets  
The student will wire a breaker box, outlet, dimmer switch, light receptacle, GFCI, and doorbell.

Unit: Plumbing  
Duration: 5 Day(s)

Academic Vocabulary  
Insulation  
Breaker box  
Pipe  
Valve  
Screwdriver  
Hammer  
Wrench  
Pipe cutter  
Drill  
Saw  
Gloves  
Safety glasses  
Hard hat

Learning Targets  
The student will learn how to install a toilet, sink, and bathtub.  
The student will learn how to fix a leak.

Unit Overview  
Installing and fixing plumbing will be explored.

Enduring Understandings  
The home owner can fix a leak in a pipe.  
The student will learn how to install a toilet, sink, and bathtub.

Essential Questions  
How does one fix a leak in a pipe?  
How does one install a toilet, sink, and bathtub?

Example Assessment Items  
The student will demonstrate how to fix a leak in a pipe.  
The student will demonstrate how to install a toilet, sink, and bathtub.

Academic Vocabulary  
Insulation  
Breaker box  
Pipe  
Valve  
Screwdriver  
Hammer  
Wrench  
Pipe cutter  
Drill  
Saw  
Gloves  
Safety glasses  
Hard hat

Learning Targets  
The student will learn how to install a toilet, sink, and bathtub.  
The student will learn how to fix a leak.
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Unit Overview
Learning how to plumb a kitchen sink will be accomplished.
Learning how to sweat solder will used in a small take home project.

Enduring Understandings
Replacing a faucet isn't difficult.
Sweat soldering can be done by a home owner.

Essential Questions
How do you connect the supply lines to the faucet?
By looking, how can you guess a joint has been correctly soldered.

Example Assessment Items
Given a sink and faucet then the student would be able to install the faucet.
Given a piece of copper and an elbow the student should be able to sweat solder them.

Academic Vocabulary
Copper
Solder
Flux
PVC
Propane torch
Spark lighter
PEX

Learning Targets
The student will plumb a kitchen sink and the drain system.
The student will cut copper pipe and sweat solder joint.

Unit: Power

Unit Overview
The basics of how a 4 stroke engine works.
The major parts of an engine.

Enduring Understandings
That most car engines are built on the 4 stroke principal.
That the major parts of an engine work as a complete unit.

Essential Questions
Why are there different strokes of an engine?
Why is precision and tolerance so critical in an engine?

Example Assessment Items
Given a cut away engine show and describe the 4 strokes of an engine.
Given a dial caliper, measure the diameter of the connecting rod journal.

Academic Vocabulary
Power
Intake
Compression
Exhaust
Tolerance
Piston
Valve
Cylinder
Crank shaft
Intake manifold
Exhaust manifold
Head
Carburetor

Learning Targets
The student will understand the 4 strokes of an engine.
The students will understand the basic parts of an engine.

Unit: Tile and concrete

Course Summary
Park Hill, MO

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Unit Overview
A basic understanding of the tiling process.
A basic understanding of mixing concrete.

Enduring Understandings
A good tiling job needs to be well thought out and carefully laid out.
Mortar and grout must be the right consistency to work properly.
Mixing concrete to the correct consistency is important.

Essential Questions
How do you mix mortar and grout?
Why do you set the tile?
How do you mix the concrete?

Example Assessment Items
Given mortar and tile - mix the mortar and set the tile in the project.
Given grout - mix the grout and float it correctly in the tile project.
Given the cement - mix it to the right consistency and pour it into the stepping stone mold.

Academic Vocabulary
Grout
Mortar
Cement
Float
Notched trowel
Spacers
Nibbler
Wet saw
Diamond blade

Topic: Tile and concrete

Learning Targets
The student will cut tile, mortar, and grout a project.
The student will mix concrete and pour the project.

Unit: Framing/Home Construction

Unit Overview
This will give the student a basic understanding of the house construction process.

Enduring Understandings
The student will know the major parts of a house in the construction phase.
The student will know function of the foundation, rough in, and completed phase in house construction.

Essential Questions
Why are flooring system components important?
Why is it essential to have a load bearing wall supporting?
How is the rafter pitch is determined?

Example Assessment Items
Given the materials, build a flooring system for the model house.
Given the materials, build a wall system for the model house.
Given the materials, build the rafter system for the model house.

Academic Vocabulary
Foundation
Footling
Sill plate
Rim joist
Floor joist
Beam
Sub floor
Stud
Header
Trimmer
Double plate
Ceiling joist
Rafter
Ridge board

Topic: Framing and home construction

Learning Targets
The student will learn the basic framing of floors and stairs.
The student will understand the framing of walls.
The student will understand the framing of a roof.
The student will understand the reason for evaluating a home before buying.
The student will build a small model house.
The student will build a small model house.

Unit: Review/Final
Duration: 2 Day(s)

Unit Overview
The student will review as a group and individually in preparation for the final.
The student will take the final.

Enduring Understandings
The student will remember the major units of the course.
The student will remember the major topics of the course.

Essential Questions
Why are the essential questions of the course valuable to my learning?
How did the essential questions align with the learning target of the course?

Example Assessment Items
Name the major units of the course.
Name the major topics of the course.

Academic Vocabulary
Major terms from units and topics.

Topic: Reviewing for final, Taking final
Duration: 2 Day(s)

Learning Targets
The student will review for the final.
The student will take the final.