

# Learning Guide Template for CTE Instructors



Schuylkill Technology Center

# Introduction



🌀 Welcome to the Schuylkill Technology Center (STC)

STC is an accredited career and technical school comprised of 12 public school districts in Schuylkill County: Blue Mountain, Mahanoy Area, Minersville, North Schuylkill, Pine Grove, Pottsville, Saint Clair, Schuylkill Haven, Shenandoah Valley, Tamaqua, Tri-Valley, and Williams Valley. We serve students in grades 10-12, operate two cycles (August - January & January - June), and have two campuses, STC - South located in MarLin and STC - North located in Frackville.

At STC, we offer 19 [programs of study](#) that combine classroom theory, hands-on application, and access to state of the art equipment. Our programs are designed to promote lifelong learning, and prepare our students for successful entry into the workforce or postsecondary education.

# MISSION STATEMENT



✧ The mission of the Schuylkill Technology Center is to enable our student to acquire the attitudes, knowledge, skills, and values necessary to become a life-long learner and a productive citizen of a global economy by developing an educational pathway for excellence driven by a partnership with education, business, industry, government, family, and the community.

# BELIEF STATEMENT



The Schuylkill Technology Center believes that:

- ❧ Education is the responsibility of the student, parents, teachers, and the community
- ❧ All individuals can learn, but learning occurs at different rates through diversified learning styles
- ❧ Individuals are more successful when they are active participants and demonstrate learning
- ❧ Individuals are more successful when they set goals, make choices, and accept responsibility
- ❧ Individuals enrich their learning by participating in family, school, and community activities
- ❧ Humanity prospers when people work together
- ❧ Diversity enhances growth and strengthens society
- ❧ Excellence is achievable and a worthwhile investment
- ❧ Learning is a life-long process that is essential for economic stability
- ❧ The future of our society depends on the effectiveness of a high-quality education

# Introduction



- ❧ STC Philosophy
- ❧ Why STC started using new and improved Learning Guides
  - ❧ Connects communication and expectations from State POS to Students
    - ❧ State, TAP, Local, Administration, Instructors, Students
    - ❧ Creates Coaching/Family Mentality
  - ❧ Standards Based Instruction
  - ❧ Programs of Study
  - ❧ NOCTI Scores
    - ❧ Vocabulary and Math
- ❧ Danielson Framework
- ❧ Paper Trail

# Introduction



- ❧ Importance of planning – lead teacher/mentor & new teachers
  - ❧ Administrative involvement with process
    - ❧ Working with all teachers on completing modules and learning guides
  - ❧ Administration and lead teacher follow-ups
    - ❧ Importance of collaboration
  - ❧ Investments- teachers and students
  - ❧ Lead teacher duties- not just a title- importance
  - ❧ Why to take Educator Effectiveness seriously
    - ❧ Instructor/administration accountability

# The Old Learning Guide

STUDENT NAME: \_\_\_\_\_ GRADE: \_\_\_\_\_  
1st 2nd 3rd Attempt

## COMPETENCY

PROGRAM: Carpentry

COMPETENCY NUMBER: 1110

CERTIFICATE LEVEL: Intermediate

UNIT: 1100 Interior Finish Trim

COMPETENCY: Layout and cut open stair stringer

DATE ASSIGNED: \_\_\_\_\_

DATE ACHIEVED: \_\_\_\_\_

| STANDARDS  |          |  |
|--|----------|--|
| Mathematics  | 2.2.11.C | Evaluate numerical expressions that include the four basic operations and operations of powers and roots, reciprocals, opposites, and absolute values.   |
|  | 2.3.A1.C | Find missing quantities in measurement formulas by applying equation solving techniques.   |
| Reading,<br>Writing,<br>Speaking,<br>and Listening | 1.1.12.B | Use context clues, knowledge of root words and word origins as well as reference sources to decode and understand new words.   |
|  | 1.1.12.B | Demonstrate fluency in silent reading based upon specific grade level text.  |
|  | 1.2.12.B | Identify, analyze, and evaluate the structure and the format of a variety of complex informational texts for clarity, simplicity, and coherence, as well as appropriateness of graphics and visual appeal. |
| INDUSTRY STANDARDS: ICA 50.1                       |          |  |

### CONDITIONS AND MATERIALS FOR PERFORMANCE OF COMPETENCY:

Given demonstration, lumber, and necessary tools

### SAFETY STATEMENT:

All general shop safety rules apply, safety rules for using power tools must be adhered to

### PERFORMANCE PROCEDURE:

See attached checklist

### CRITERIA:

Minimum level of achievement is 88%

# Each Learning Guide Identifies



- ❧ Each POS task to be taught (new teacher overload)
- ❧ PA Core Standards to be reinforced including worksheets/ graphic organizers used to teach the PA Core Standards (mentor teacher)
- ❧ A collection of related learning activities/ topics which addresses the POS state task list
- ❧ Performance rubrics (accountability/ proof of instruction)



# New Teacher Input



- ❧ Information Overload-
  - ❧ POS tasks
  - ❧ Standards
  - ❧ SLOs
  - ❧ Grading and rubrics eliminates subjectivity
  - ❧ New Initiatives
  - ❧ KWL
  - ❧ Learning the system
- ❧ How I did it
- ❧ How and why it helped
- ❧ Success?

# New Learning Guide



NAME:

DATE:

DATE DUE:

Schuylkill Technology  
Center-  
South Campus  
15 Maple Avenue  
Marlin, Pennsylvania 17951  
(570) 544-4745

**COURSE TITLE:** Basic Residential Circuitry

**DUTY TITLE:** Testing Equipment

**DUTY NUMBER:** 1200

**TASK # 20:** Connecting and Reading of Meters in a Circuit

**PURPOSE:** To Connect Meters in Various Locations of a Circuit and be able to Read the Desired Electrical Values.

**TASKS:**

|      |   |
|------|---|
| 1101 | Identify and safely use a multi-meter.                |
| 1102 | Identify and safely use a continuity tester.          |
| 1103 | Identify and safely use a plug-in circuit tester.     |
| 1104 | Identify and safely use a clamp-on ammeter.           |
| 1105 | Identify and safely use a megger (insulation tester). |
| 1106 | Identify and safely use a circuit tracer.             |

**REVISION:** 2014

# Programs of Study



## Plumbing Technology/Plumber, Classification of Instructional Program (CIP) 46.0503 Units of Instruction and Task Grid Linked to Pennsylvania Core Standards

| Secondary Competency Task List<br>with Unit and Task Numbers  | Common Career<br>Technical Core<br>Standards   | Pennsylvania Core Standards for<br>Reading for Technical Subjects<br>Standard 3.5  | Pennsylvania Core<br>Standards for Writing for<br>Technical Subjects<br>Standard 3.6  | Pennsylvania Core Standards<br>for Mathematics<br>Standard 2.0  |
|---|--|--|---|---|
| <p><b>100. DEMONSTRATE PERSONAL SAFETY IN THE TRAINING LABORATORY.</b></p> <p>101 Demonstrate how to follow rules for fire safety.<br/>           102 Demonstrate how to follow rules for housekeeping safety.<br/>           103 Demonstrate how to follow shop rules.<br/>           104 Demonstrate how to follow rules for material handling safety.<br/>           105 Demonstrate how to follow rules for eye protection.<br/>           106 Demonstrate how to follow rules for hearing protection.<br/>           107 Demonstrate how to follow rules for respiratory protection.<br/>           108 Demonstrate how to follow rules for hand tool safety.<br/>           109 Demonstrate how to follow rules for power equipment safety.<br/>           110 Demonstrate how to follow rules for portable electric hand tool safety.<br/>           111 Demonstrate how to follow rules for M.S.D.S. Safety.<br/>           112 Demonstrate how to follow safety rules as they relate to E.C.P. (Exposure Control Procedures: blood borne pathogens, etc.).<br/>           113 Demonstrate how to follow OSHA (Occupational Safety Health Act) regulations.</p> | <p><b>CLUSTER:</b><br/> <i>Architecture and Construction</i><br/>           Choose Cluster Standards from:<br/>           1-2-3-4-5-6-7</p> <p><b>2 PATHWAYS:</b><br/> <i>Construction Careers</i><br/>           Choose Standards from: 1-2-3-4-5-6-7-8-9</p> <p><i>Maintenance Operations</i><br/>           Choose standards from 1-2-3-4-5-6</p> | <p><b>KEY IDEAS/DETAILS GRADES 9-10</b><br/> <b>Standard CC.3.5.9-10.A.</b><br/>           Cite specific textual evidence, etc....<br/> <b>Standard CC.3.5.9-10B &amp;</b><br/>           Determine the central ideas or conclusions of a text; etc...<br/> <b>Standard CC.3.5.9-10.C</b><br/>           Follow precisely a complex multistep procedure, etc...</p> <p><b>KEY IDEAS/DETAILS GRADES 11-12</b><br/> <b>Standard CC.3.5.11-12A</b><br/>           Cite specific textual evidence, etc....<br/> <b>Standard CC.3.5.11-12.B.</b><br/>           Determine the central ideas or conclusions of a text; etc...<br/> <b>Standard CC.3.5.11-12.C.</b><br/>           Follow precisely a complex multistep procedure, etc...</p> <p><b>CRAFT &amp; STRUCTURE GRADES 9-10</b><br/> <b>Standard CC.3.5.9-10.D.</b><br/>           Determine the meaning of symbols, key terms, and other domain specific words...<br/> <b>Standard CC.3.5.9-10.E</b><br/>           Analyze the structure of the</p> | <p><b>TEXT TYPES AND PURPOSE GRADES 9-10</b><br/> <b>Standard CC.3.6.9-10.B</b><br/>           Write informative or explanatory texts, including the narration of technical processes, etc.</p> <p><b>TEXT TYPES AND PURPOSE GRADES 11-12</b><br/> <b>Standard CC.3.6.11-12.B</b><br/>           Write informative or explanatory texts, including the narration of technical processes, etc.</p> <p><b>PRODUCTION &amp; DISTRIBUTION OF WRITING GRADES 9-10</b><br/> <b>Standard CC.3.6.9-10.C</b><br/>           Produce clear and coherent writing... appropriate to task, purpose, and audience.<br/> <b>Standard CC.3.6.9-10 D</b><br/>           Develop and strengthen writing as needed.<br/> <b>Standard CC.3.6.9-10.E</b></p> | <p><b>NUMBERS AND OPERATIONS</b><br/> <b>Standard 2.1.HS.F.2</b><br/>           Apply properties of rational and irrational numbers to solve real world or mathematical problems.<br/> <b>Standard 2.1.HS.F.4</b><br/>           Use units as a way to understand problems and to guide the solution of multistep problems.<br/> <b>Standard 2.1.HS.F.5</b><br/>           Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.<br/> <b>Standard 2.1.HS.F.6</b><br/>           Extend the knowledge of arithmetic operations and apply to complex numbers.</p> |



Technology is our middle name!

NAME: \_\_\_\_\_ Date: \_\_\_\_\_



Schuylkill Technology Centers  
North Campus

- Since 1902 -

**CARPENTRY  
PROGRAM**

(Cip Code: 46.0201)

101 Technology Drive

| 1200 | Learning Guide #12: ESTIMATION  | Level 3 |
|------|---|---------|
| 1201 | Demonstrate the knowledge of how to estimate the bricks and blocks needed to complete a given task. |         |
| 1202 | Correctly estimate the amount of concrete needed to complete a given task.                          |         |
| 1203 | Correctly estimate the cost and amount of materials to finish an exterior wall.                     |         |
| 1204 | Correctly estimate the cost and amount of materials to finish an interior wall.                     |         |
| 1205 | Correctly estimate the cost and amount of materials to construct a floor.                           |         |
| 1206 | Correctly estimate the cost and amount of materials to construct a roof.                            |         |
| 1207 | Correctly estimate the cost and amount of materials to install siding for a house.                  |         |

**PURPOSE:** To develop estimating skills using related math, and a builder's calculator to determine materials costs for a construction project, and to prepare for NOCTI testing items related to carpentry certification.

**STC Carpentry Industry Certifications:**

Residential Construction Academy (RCA) Certificate | NOCTI Carpentry Certificate

**NOTE:** If you are having any difficulties concerning Learning Guide #12, check this box, and circle each page number, so we can assist you.



# PA Core Standards

*Math -PA CC.3.1.HS.F.2: Apply properties of rational and irrational numbers to solve real world or mathematical problems.*

Pennsylvania Core Standards for Mathematics Standard 2.1



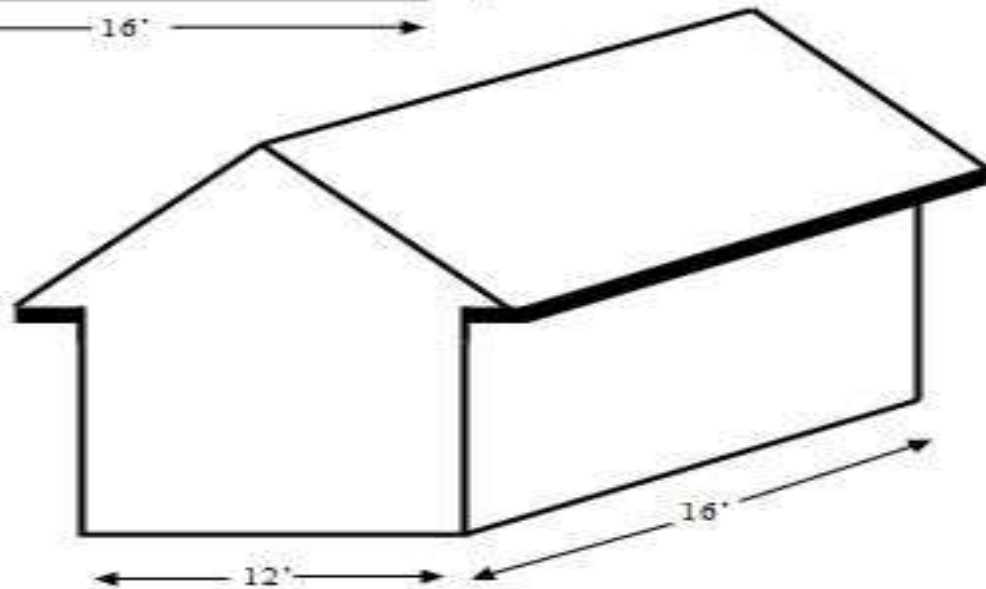
## **MATH COUNTS: ESTIMATE A RESIDENTIAL JOB**

**INSTRUCTIONS:** Using the "Estimating Formulas" (theory room north) wall, and a builder's calculator, estimate and list the building materials to complete the building below- (twenty jobs)



**Construction Notes:**

1. Walls: 8 ft.
2. Roof overhang: 1 ft. on eaves and rake.
3. Roof slope: 6/12



|   | <b>Job/Material:</b>   | <b>Quantity: <i>SHOW ALL CALCULATIONS!</i></b> |
|---|--|--|
| 1 | <b>Concrete block</b><br>(foundation: 24" high<br>crawl space) |  |
| 2 | <b>Anchor bolts</b><br>( $\frac{3}{4}$ " x 10" @ 4ft. OC)      |  |
| 3 | <b>Concrete floor</b><br>(4" thick)                            |  |
| 4 | <b>Rim joists</b><br>(2" x 10" SPF #2)                         |  |

# Performance Rubrics

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Level: \_\_\_\_\_ POS Task#1101-1102

## Multi Meter & Continuity Tester Rubric

| Description of task  | Points Available               | Points Earned |
|--|--------------------------------|---------------|
| Student wore proper PPE according to OSHA guidelines.<br>(Correct/Incorrect)   | 10                             |               |
| Student tested meter leads correctly.<br>(Correct/Incorrect)   | 5                              |               |
| Student chose correct scales for readings.<br>(-3 points per incorrect scale)  | 20                             |               |
| Student was able measure a resistance reading to with 5% of actual value.<br>(-1 point per 5% incorrect reading)                               | 5                              |               |
| Student was able to perform a continuity reading to identify unlabeled conductors in a conduit.<br>(Correct/Incorrect)                         | 5                              |               |
| Student was able to perform a continuity reading on an incandescent lamp. (Correct/Incorrect)  | 5                              |               |
| Student was able to perform a continuity reading on a circuit breaker.<br>(Correct/Incorrect)  | 5                              |               |
| Student was able to perform a continuity reading on contacts in a motor control starter.<br>(Correct/Incorrect)                                | 5                              |               |
| Student was able to take a 208 volt, three phase voltage reading to within 2 volts of actual.<br>(-1 point per incorrect reading) Reading L1-N | 5                              |               |
| Student was able to take a 208 volt, three phase voltage reading to within 2 volts of actual.<br>(-1 point per incorrect reading) Reading L1-N | 5                              |               |
| Student was able to take a 208 volt, three phase voltage reading to within 2 volts of actual.<br>(-1 point per incorrect reading) Reading L1-N | 5                              |               |
| Student was able to explain how to read amperage using the multi-meter.<br>(Correct/Incorrect)   | 10                             |               |
| Student was able to identify and explain a "high Leg" situation.<br>(Correct/Incorrect)  | 10                             |               |
| Student was able to explain the difference between a digital meter and an analog meter.<br>(Correct/Incorrect)                                 | 10                             |               |
| Final Score  | Points Earned Out of 130 Total |               |
|  | Grade Percentage               |               |

Comments: \_\_\_\_\_  
\_\_\_\_\_

Student Signature: \_\_\_\_\_ Instructor Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# Mentor Teacher Input



- ❧ Implementing PA Core Standards into the lessons
  - ❧ Examples: word wall, math problems, questions of the day, vocabulary, exit ticket
- ❧ Old learning guide vs. new learning guide for the veteran teacher
  - ❧ Everything in one place- worksheets, graphic organizers, etc.
  - ❧ Resource for the students after they leave
  - ❧ Guide lines for portfolio





# Weekly Trade Terms

Credit

\_\_\_\_\_ out of 10

\_\_\_\_\_ %

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Level: \_\_\_\_\_

## Weekly Plumbing Terms Quiz

Write the correct term next to the definition that best describes it.

|    |  |
|----|--|
| 1) | A water heater that does not store water in a storage tank; may also be called instantaneous.                                  |
| 2) | The location where the manifold for radiant heating loops is located.  |
| 3) | Process to weld copper tube using flux and solder.   |
| 4) | A reactionary device that protects a water heater against excessive pressure.  |
| 5) | Heating system that attempts to regulate the heat loss of the individual as opposed to the rate of heat loss of the structure. |

### Word Bank

Soldering - Radiant Heat - Tankless  
Pressure Relief - Manifold Station

Write a sentence using each word.

- 1) \_\_\_\_\_  
\_\_\_\_\_
- 2) \_\_\_\_\_  
\_\_\_\_\_
- 3) \_\_\_\_\_  
\_\_\_\_\_
- 4) \_\_\_\_\_  
\_\_\_\_\_
- 5) \_\_\_\_\_  
\_\_\_\_\_

# Math Rubric

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
 FINAL GRADE: \_\_\_\_\_ % LEVEL: \_\_\_\_\_



## Practical Problems in Mathematics for Electricians

| QUESTION  | ANSWER |
|---|--------|
| 1. In wiring 8 houses, the electricians install 65, 57, 57, 74, 49, 101, 99, and 56 outlets. Find the total number of outlets that must be roughed-in.  |        |
| 2. An electrician removes from stock, at different times, the following amounts of MC cable: 120', 527', 637', 502', 500', 250', 140', 75', and 739'. Find the total number of feet of MC Cable taken from stock.   |        |
| 3. An electrical supply house purchases in separate lots, 50, 120, 57, 115, 105, 33, 210, and 40 pounds of solder. What is the total number of pounds of solder purchased?  |        |
| 4. A school has twelve electrical circuits which have a capacity of 1-559 watts, 1-350 watts, 1-533 watts, 1-363 watts, 1-790 watts, 1-500 watts, 1-157 watts, 1-250 watts, 1-500 watts, 1-750 watts, 1-530 watts and 1-463 watts. What is the total number of watts consumed when all these circuits are being used to their fullest load? |        |
| 5. MC Cable in the following amounts is used on an apartment building job: 250', 71', 39', 110', 75', 57', and 560'. What is the total amount of cable used on this job?  |        |
| 6. The following number of MC staples is used during a given period: 25, 150, 35, 105, 92, 150, 25, 55, 97, 65, and 40. Find the total number of MC staples used.   |        |
| 7. An electrician takes out of stock 495 feet of MC Cable on Monday, 105 feet on Tuesday, and 75 feet on Wednesday. On Friday, 27 feet of MC Cable is returned to stock. How much MC Cable was used?  |        |
| 8. An inventory sheet shows a balance of 500 outlet boxes on January 1. On January 10, 127 outlet boxes are taken out of stock. On January 14, 63 boxes are returned to stock. How many outlet boxes are left in stock?   |        |
| 9. An electrical contractor charges \$350.00 for a job. The materials cost \$105.00. The cost of labor is \$139.00 and the cost of transportation is \$11.00. Find the profit of the job.   |        |
| 10. A purchase of 2,500 feet of #14, double-braided, rubber-covered wire is made for a job. On November 1, 975 feet of this wire is used, and on November 5, 1,025 feet is used. How many feet of wire is left?   |        |
| 11. A building contains seventy 100 watt bulbs, thirty eight 74 watt bulbs, ten 60 watt bulbs and twenty 40 watt bulbs. If all of the lights are on, what is the total amount of wattage being used?  |        |
| 12. An electrical contractor employs 16 people. Five people earn \$5.00 per hour, four people earn \$7.00 per hour, and the remaining people earn \$6.00 per hour. What is the total hourly wage earned by all 16 people?   |        |
| 13. A 7 floor apartment building has an average of 7 electrical circuits per apartment, and there are 8 apartments per floor. How many electrical circuits are there in the building?   |        |

# Lead Teacher/Mentor Role



- ❧ The importance of the lead teacher and mentor (teacher's perspective)
  - ❧ Guidelines give direction
- ❧ Coaching and family mentality (no I in team) but **one** in WIN!!!!!!!!!!!!!!!!!!!!!!!!!!!!
- ❧ Not just administration telling instructors what to do
  - ❧ Resources available: Lead Teachers, Administrators, TAP team and Instructors
- ❧ Proof of instruction is documentation
  - ❧ Guides
  - ❧ Rubrics

# Administration Input



- ❧ Expectations
  - ❧ “Show us how to do it”
  - ❧ Clear direction
- ❧ Textbook is just a reference
  - ❧ Learning guides are “doing”
  - ❧ Rubrics
- ❧ Danielson Model
- ❧ SLO
  - ❧ Teacher and administrator accountability

# Correlation between our SLO and the Danielson Framework

| STC Learning Guide  | Framework for teaching Component(s)   |
|---|---|
| <p><b>Course Title:</b></p> <p>Include the local title for the program approved by the Pennsylvania Bureau of Career and Technical Education. Approved programs follow a state curriculum called a Program Of Study (POS) task list. Instructors are required to maintain student records on task completion and promote the opportunity to earn college credit by completing a POS. Current CIP Code and POS tasks can be found at the SOAR (STUDENTS OCCURRationally AND ACADemically READY).</p>   | <p><b>Domain 1 Planning and preparation</b></p> <p>1a Demonstrating knowledge of content and pedagogy</p> <p>1d Demonstrating a knowledge of resources</p> <p>1e Designing coherent instruction</p> <p><b>Domain 4 Professional Responsibility</b></p> <p>4b System for managing students' data</p> <p>4d Participating in a professional learning community(PLC)</p> |
| <p><b>POS task Numbers:</b></p> <p>POS task #(s) and task description(s)</p> <p>Include task(s) covered in a learning guide. To qualify for college credit, students are required to successfully complete 100% of the tasks, therefore, completion of a learning guide is also a way to track task completion.</p> <p>Effective learning guide design starts with deciding how many tasks to include in a guide. Review textbooks or similar resources and make decisions on the complexity and length of the content. If content is complex or lengthy, it may be advisable to limit the guide to just one task. When including content for several tasks enhances understanding, follow that strategy.</p> | <p><b>Domain 1 Planning and preparation</b></p> <p>1a Demonstrating knowledge of content and pedagogy</p> <p>1c Setting instructional outcomes</p> <p>1d Demonstrating a knowledge of resources</p> <p>1e Designing coherent instruction</p> <p><b>Domain 4 Professional Responsibility</b></p> <p>4b System for managing students' data</p>                          |
| <p><b>Purpose:</b></p> <p>Explanation Paragraph(s)</p> <p>Include a brief description of what is covered in the learning guide lessons and why it is important in the profession.</p>   | <p><b>Domain 1 Planning and preparation</b></p> <p>1c Setting instructional outcomes</p> <p>1e Designing coherent instruction</p> <p><b>Domain 3: Instruction</b></p> <p>3a Communicating with students</p>   |

# STC Team



- ❧ **Kurt Lynch, Director of Vocational Education**
- ❧ **Jeff Sweda, Assistant Principal**
- ❧ **Stacey Minahan, Assistant Principal**
- ❧ **Tim McGinley, Lead Teacher/Co-Op Coordinator**
- ❧ **Tracey Picht, Career Counselor**
- ❧ **Lisa Worthy, CIS Instructor**
- ❧ **Andy Wollyung, Plumbing Instructor**
- ❧ **STC Staff**

# Thank You



- ☞ Visit our web site for all information discussed;
- ☞ [www.stcenters.org](http://www.stcenters.org)
- ☞ Click on the Integrated learning folder on the STC home page