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DEPARTMENT OF EDUCATION

**Teacher Strategies
to
Improve Student Performance**

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**COMMONWEALTH OF PENNSYLVANIA
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333 Market Street
Harrisburg, PA 17126-0333



Commonwealth of Pennsylvania

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Department of Education

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Voice Telephone: (717) 783-3750
Fax: (717) 783-6802
Text Telephone TTY: (717) 783-8445

If you have any questions about this publication or for additional copies, contact:

Pennsylvania Department of Education	Voice: (717) 787-5530
Bureau of Career and Technical Education (BCTE)	Fax: (717) 783-6672
333 Market Street, 5th Floor	TTY: (717) 783-8445
Harrisburg, PA 17126-0333	www.education.state.pa.us

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Teacher Strategies to Improve Student Performance

Essential Questions:

1. What curriculum planning or revision steps provide focus on the instructional content necessary to improve student performance?
2. What research based instructional delivery strategies can be implemented to increase student performance?

Introduction:

Career and technical educators are held accountable for student performance through the Pennsylvania System of School Assessment (PSSA), National Occupational Competency Testing Institute (NOCTI) and Keystone assessment requirements; therefore, federal, state and local resources are focused on improving student performance through planned strategies that demonstrate results.

Research has proven that consistent teacher effort to utilize proven strategies will make significant improvements in student performance. A series of small curriculum planning and instructional delivery changes made by a teacher over time will result in more focused instruction, more engaged students and improved performance.

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:

STEPS:

EXPLANATION:

EXAMPLES:

STEP # 1 – IDENTIFY AND WORK WITH PROGRAM CONTENT:

A. Describe program content.

Curriculum Product:

- A task list, or similar document that clearly describes workplace activities in action terms.

B. Adopt the state Program of Study (POS) as the program task list or crosswalk the local task list to the POS.

Curriculum Products:

- POS task list or local list aligned to the POS. Add all POS tasks not included on the local list. If the local list includes tasks not on the POS, they can remain as enrichment material.
- Documentation of student POS task

- Career and Technical Education (CTE) program content includes a series of workplace activities that are often described by different titles including task, competency, etc. The title utilized is the preference of the school; however, the intent is to provide a clear description of a workplace activity. BCTE utilizes the term task in the Program of Study (POS); therefore, task is used in this document.

- Tasks define the things a worker must know, understand, and be able to do; the cognitive processes they must follow to make decisions; and, the personal skill they must exhibit to successfully complete a workplace activity. Tasks are written in action terms usually starting with a verb that describes the workplace activity. (“Set Up,” “Interpret,” “Classify,” “Use,” “Select”)

- The BCTE has required that approved CTE programs follow a state task list called the Program of Study (POS).

- The Program of Study (POS) identifies high school / post-secondary technical content that is

Example From the Pennsylvania Department of Education’s Programs of Study.

Auto body/Collision and Repair technology /Technician
CIP 47.0603, POS Task Grid:

UNIT:

900: Structural Repair – Damage Analysis:

Tasks:

901 Classify the various types and extent of damage a vehicle sustains from an accident.

902 Select and interpret body dimension specifications sheets and/or manuals.

903 Set up and use tram gauge to diagnose vehicle length and width damage.

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:

STEPS:

completion, which also provides proof of dual enrollment, articulation and industry certifications.

C. Crosswalk CTE program tasks to both the NOCTI written and performance content that can be found in the NOCTI Blueprint. If no match can be found, include the NOCTI content as a new task.

Curriculum Products:

- POS task list or local list aligned to both NOCTI written & performance content.
- Evidence that NOCTI tasks were emphasized, practiced, assessed and successful performance recognized.

D. Cross walk CTE program tasks with Pennsylvania Core Standards.

Curriculum Products:

EXPLANATION:

aligned with Pennsylvania Core Standards. BCTE partners with post-secondary institutions and industry associations to provide college credit and industry certification through completion of POS tasks.

- A school can adopt the POS or continue to utilize their local list and crosswalk it to the POS. Whatever the choice, the school is required to prove that students successfully complete all POS tasks prior to graduation. Proof is especially important for students pursuing post-secondary education where the POS task list is required to obtain college credit (articulation credit).
- NOCTI is a national organization that produces assessment tools to measure student achievement through both written and performance tests.
- CTE Instructors are accountable for student NOCTI scores.
- Student performance cannot be improved without knowing where the NOCTI written and performance content is included within the task list.

EXAMPLES:

[Exhibit 1 Auto Collision CIP.pdf](#)

Auto Body/Collision and Repair Technology /Technician CIP 47.0603
POS Crosswalk Task Grid

Crosswalk of POS tasks in the left column with the local tasks in the middle column.

[Exhibit 2 Auto Collision Student Task list.pdf](#)

Corresponding Auto Collision Student Task List cross walked to POS Task Grid. Provides proof of individual student task completion.

Resource: Click to view POS information:

[POS web site link](#)

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:

STEPS:

- POS task list or local list aligned to Pennsylvania Core Standards that can effectively be taught or reinforced as part of the CTE lesson.
- Evidence that the Pennsylvania Core Standards supports the career task and is reinforced or taught as part of the lesson.

E. Organize the task list by grouping related tasks into units.

Curriculum Product:

- Task list organized into units that share a common theme or workplace realism, (most often called a curriculum scope and sequence).
- F. Organize and work with an Occupational Advisory Committee (OAC), to review and maintain the accuracy of the task list, and to provide general program support.

Curriculum Product:

EXPLANATION:

- Use the NOCTI Blueprint, Study Guides and Pre-Tests to identify written and performance content, and match to the schools' task list.
- When teaching tasks that have been identified as NOCTI content, emphasize their importance, re-teach and practice often.
- Pennsylvania Core Standards identify academic content assessed by PSSA and Keystone exams.
- CTE Instructors along with all Pennsylvania teachers are accountable for student PSSA and Keystone Exam scores.
- This accountability is not unreasonable because academic skills such as reading, oral/written communications, math, science, and higher-level problem solving, are all crucial to career success. We share responsibility for reinforcing and teaching these academic skills.
- Academic skills cannot be improved without knowing where CTE tasks provide opportunities to teach or reinforce the Pennsylvania Core Standards.

EXAMPLES:



Resource: Click to view NOCTI information:

[NOCTI Web site link](#)

Revisit [Exhibit 1 Auto Collision CIP.pdf](#)

NOCTI written and performance tasks from the Auto Collision Blueprint are coded with a "W" or "P" and cross walked to the Auto Collision POS and local tasks.

Revisit [Exhibit 2 Auto Collision Student Task list.pdf](#)

The Student Task List denotes NOCTI content with a *

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:

STEPS:

EXPLANATION:

EXAMPLES:

- Advisory Committee minutes detailing the review of the task list and any additional program recommendations.

STEP # 2 – PREPARE OR REVISE INSTRUCTIONAL PLANS:

- A. Identify the lesson plan format and components required by the school.

Curriculum Product:

- Lesson plan format and a clear description of the components included in the plan.
- B. Identify the task(s) or content to be included in each lesson plan and indicate any alignment to the POS, articulation, dual enrollment, or certifications.

Curriculum Product:

- Lesson plans with corresponding POS task statements or local task statements aligned with the POS, articulation, dual

- Go to the Standards Aligned System (SAS) web site, click Standards, click (Common Core), select a subject area and find a Core Standards that can be reinforced or taught as part of the CTE task instruction. Detail the content and strategy in the lesson plan.

- These units can also be called major divisions, topics, or duties. POS tasks are already grouped into units.

- A teacher can change the order of units or even the order of tasks within the unit to reflect the local sequence of instruction. A task list should be a useful tool that reflects a chronological sequence from the beginning of the year to the end, from the beginning of the program to graduation. Students and parents should receive copies and student progress should be recorded on the list.

- The Occupational Advisory Committee is required by BCTE and must include current employees, supervisors, or employers with workplace experience in the program content area. Their trade experience provides the

Resource: Click on the following link to access Pennsylvania Department of Education Standards Aligned System, (Common Core).

[SAS Web Site Link](#)

Example for any CTE program area:

- Pennsylvania Core Standards for English Language Arts, grades 6 – 12.
- Five categories are included in this subject area. For the purpose of our example we have selected writing, category #4.
- 1.4 Writing: Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.
- CC.1.4.11 – 12.B Write with a sharp distinct focus identifying topic, task and audience.
- This Pennsylvania Core Standard can be reinforced or taught as part of many CTE tasks including thank you letters, application letters, proposals,

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:

STEPS:

enrollment, or certifications.

C. Identify performance criteria for each task or group of tasks.

Curriculum Products:

- Performance criteria are listed on lesson plans, included in performance objectives or incorporated in the much preferred performance checklist or rubric.
- Evidence that instructors utilize performance criteria to evaluate student ability prior to grading.

D. Write performance objectives for each task.

Curriculum Products:

- Performance objectives included as lesson plan components and written to include three parts: condition, performance, and criteria.

EXPLANATION:

expertise necessary to give the teacher advice on task content, equipment, and safety. Committee members are also a source for field trips, guest speakers, student employment and other resources.

- Instructional plans are identified by different titles: competency guide lesson plan, teaching plan, etc. The title is the preference of the school. The intent is to outline components required to teach a task(s) or a lesson.
- Schools usually prescribe a format that includes components they wish to emphasize. The format, components and titles vary between schools; however, the intent is to clearly explain how instruction will proceed.
- The usual starting point begins with listing the task(s) or content for which the plan is being developed.
- A lesson plan is prepared for each task included on the official list. This is the usual practice when the list reflects realistic workplace activities and not smaller steps. If the list includes smaller workplace steps, it is advisable to combine a

EXAMPLES:

reports, assembly instructions, etc.

Revisit [Exhibit 1](#) and [Exhibit 2](#)

The Auto Collision POS Task Grid and the student task list demonstrate how an instructor prepares a chronological list that reflects a true sequence of instruction, and how records are maintained to document student progress on task completion.

[Exhibit 3 Lancaster Transportation.pdf](#)

Lancaster County CTC, Transportation Cluster Teaching Plan

An example of a short plan that includes many of the essential components including: performance objective, measureable criteria, integrated academics, performance checklist, cooperative learning, student engagement and formative assessment.

SREB Resources:

[SREB Web Site Link](#)

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:

STEPS:

EXPLANATION:

EXAMPLES:

- If the Learning Focused Schools (LFS) model is used, the essential question replaces the performance objective. Refer to LFS handbooks for details. See Exhibit 4.

E. Prepare an introduction for each lesson.

Curriculum Products:

- A written lesson introduction included as a lesson plan component or attached as part of a power point.
- Evidence that instructors utilize performance objectives, especially performance criteria, to introduce a lesson and establish its importance.
- Evidence that instructors introduce a lesson by helping students to focus on new content by making connections to previous lessons, using organizing strategies and materials, or teaching new vocabulary.

number of smaller related tasks on one plan.

- Task wording on lesson plans should be identical to the wording on the approved task list. If the school crosswalks their task list to the POS, the wording of the local task(s) and the POS wording should both be noted on the lesson plan. This saves time later when the BCTE conducts program reviews and is looking for evidence that the POS has been implemented. It also provides evidence for Dual Enrollment, College Articulation and Industry Certification matters.
- Performance criteria, sometimes called performance standards or simply criteria, are overlooked as a lesson plan component; however, they are essential for accurate assessment.
- Performance criteria describe what it looks like when the task is performed correctly. They are measureable statements that describe how well the task must be performed to match industry requirements.
- Performance criteria are obtained from valid occupational analysis material such as National Institute for Metalworking Skills (NIMS),

SREB Publications: (download from website, search publications)

“Planning for improved Student Achievement, Ten Steps for Planning and Writing Standards Based Units”

“Designing Challenging Vocational Courses”

Safety Example:

- Task:
Operate a fire extinguisher
- Performance Criteria:
 - * Select the correct extinguisher.
 - * Extinguisher is carried properly.
 - * User is within stream reach of fire.
 - * P-A-S-S- sequence is followed.
 - * Fire was extinguished.

Revisit [Exhibit 3 Lancaster Transportation.pdf](#)

The Lancaster County CTC

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:



F. Prepare the lesson body by outlining theory topics needed to understand the task.

Curriculum Products:

- The lesson body includes an outline of theory topics utilized as lecture notes or presented through software and technology.
- Evidence that teachers check for comprehension during delivery of theory topics and re-teach when necessary.

G. Integrate Pennsylvania Core Standards content into CTE theory topics.



www.pdesas.org

Automotive Service Excellence (ASE), Occupational Information Network (O*NET), or commercial products, and should always be reviewed and approved by the local Occupational Advisory Committee.

- The preferred practice is to assess each task using a performance checklist or rubric. Use performance criteria as a checklist or create a rubric by adding a scale to each criterion.
- Many schools prefer a component called a performance objective to quickly convey a clear description of the learning. Other titles are used for this component including goal, essential question or outcome.
- If a performance objective is used, the preferred style requires three parts:

Condition: description of the materials and strategies used to teach the task.

Performance: restatement of the task.

Criteria: restatement of performance criteria.

Transportation Cluster teaching plan includes “Jacking and Lifting an Automobile” performance checklist on the last page. Note how the criteria describe what it looks like when this task is performed correctly.

Veterinary Program Example:

- Performance Objective:
Given a reading assignment, guided notes and a flow chart, students will complete a packed cell volume test and score 10 out of 10 points on the task performance checklist.

Performance Checklist:

- * Follow standard precautions.
- * Obtain blood sample in purple top tube.
- * Rock blood to mix.
- * Obtain capillary/MCT tube and clay.
- * Place tube into blood using capillary action to fill tube $\frac{3}{4}$ full.
- * Place finger over one end of tube; place the other end of tube into the clay to stopper the tube.

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:

STEPS:

EXPLANATION:

EXAMPLES:

Curriculum Product:

- Lesson body includes the numerical and narrative description of the Pennsylvania Core Standard and describes how it will be taught in the CTE lesson.
- Evidence that teachers check for comprehension during instruction of the core standard and re-teach when necessary.

H. Prepare the lesson body by outlining performance steps needed to complete the task.

Curriculum Product:

- The lesson body includes an outline of performance steps used as lecture or demonstration notes, or presented through software and technology.
- Evidence that teachers check for comprehension of performance steps

Sometimes criteria are listed at the end of the performance objective; however, if they are lengthy, the more common practice is a reference to an attached performance checklist or rubric.

- Lesson plans include an introduction component because it prepares learners for upcoming content, motivates them to pay attention, and provides focus during the lesson. Some schools call this component the anticipatory set, activating strategy, or do now.
- The introduction should include a clear explanation of the performance objective, especially the performance criteria. Learners need to know the purpose of the lesson, conditions or environment under which they will be taught, and a level of performance they must meet at the end of instruction. Providing this information up front gives students clues to better focus on data throughout the lesson.
- Research proves that connecting new lessons to prior lessons improves understanding. Also, using a chart or organizer to fit new content into meaningful categories, teaching new vocabulary,

- * Place tube into centrifuge, balance with another tube opposite.
- *Place inner screw on centrifuge lid.
- *Put centrifuge on MCT/PCV fast spin setting and push start.
- * Etc....

[Exhibit 4 Auto Collision.pdf](#) Example of LFS Essential Question, Unit Plan

Robotics Program Example:

Lesson Introduction:

“The objective of this lesson is to review electrical symbols used in electrical drawings.

“Quick ID of these symbols is a crucial skill for the technician and as you remember, we covered these symbols before in AC/DC Electrical Systems and Electrical Motor Control lessons.”

“These symbols may appear on the NOCTI exam.”

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:

STEPS:

EXPLANATION:

EXAMPLES:

through guided practice or a performance test, and re-teach when necessary.

- I. Prepare the lesson body by adding pre-planned questions to the lesson body.

Curriculum Product:

- Pre-planned questions included in the theory topic/performance step outline within the lesson body. The questions focus on as many of the higher levels of Bloom’s Taxonomy as possible.
- Evidence that instructors frequently check for comprehension and pre-plan questions to focus students on higher levels of learning.

- J. Identify the materials, resources, and technologies needed to teach the lesson.

Curriculum Product:

or getting students actively involved all have the same significant affects.

- The outline of what will be taught is included in a lesson body component. Theory topics are the starting point in the outline because they develop the understanding necessary to safely and correctly perform a task. Theory is the knowing behind the doing.
- Analyze the task, including criteria, to select topics that explain background, characteristics, similarities, differences, decisions, consequences, applications or other essential content needed to perform the task correctly and safely.
- If necessary, organize the topics into small steps to enhance understanding. Outline the content in sufficient detail to use as lecture notes or create a power point to enhance visual impact. Use software, Smart Boards or student engagement strategies like “share-pair” to increase student involvement.
- Lesson plans include components that require the numerical or narrative descriptions of the Pennsylvania Core Standards that is included in

Safety Example:

- Task:
Operate a fire extinguisher.
- Performance Criteria:
 - * Select the correct extinguisher
 - * Extinguisher is properly carried
 - * User is within stream reach of fire
 - * P-A-S-S sequence is followed
 - * Fire was extinguished
- Theory Topics:
 - * Identify and distinguish between types of fires
 - * Types of fire extinguishers
 - * Specific uses of each extinguisher
 - * Unique operating characteristics of each type of extinguisher

[Exhibit 5 McCaskey Health Careers.pdf](#)

McCaskey high School Health Careers lesson plan

The short plan provides a list of theory topics or “talking points that clearly

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:

STEPS:

- Resources, materials and equipment have been identified. Evidence that instructors plan and utilize a variety of resources, including literacy and numeracy materials.
- K. Comply with all Individualized Education Plans (IEP) regulations and legal requirements.

Curriculum Product:

- Minutes or similar documentation to verify CTE representation at every IEP meeting for students planning to attend a CTE program.
 - Documentation in teacher or special education staff files to demonstrate curriculum, materials or teaching strategy modifications are in compliance with the IEP.
 - Evidence that teachers use adaptations and accommodations when specified.
- L. Prepare a lesson summary or conclusion.

EXPLANATION:

the lesson. It is recommended to add an explanation in the lesson body that describes how the content is taught.

- Theory topics are taught to establish a foundation necessary to perform a task. The Pennsylvania Core Standards needed to comprehend theory are no less important for CTE students than other students. It could be argued that CTE theory is more challenging considering its technical nature and the reading level of many texts. Academic content that focuses on vocabulary, summarizing, interpreting, analyzing or using mathematics help CTE students comprehend their subject.
- In the lesson body it is explained how using the Pennsylvania Core Standards content will improve understanding of the CTE lesson. This mutually beneficial strategy is academic integration.
- Tasks can be complex requiring that performance be broken down into steps that are easy to understand. Titles vary for these steps including performance or task steps, procedures, etc. Some schools require the addition of these steps in the lesson body while others require the preparation

EXAMPLES:

convey the intent of the lesson.

Automotive Technology Example:

Pennsylvania Core Standards, English language Arts, Grades 6 – 12, 1.2 Reading Informational Texts. Read, understand, and respond to informational texts – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.

Grade 11–12 Vocabulary acquisition and Use.

CC.1.2.11–12.K Determine or clarify the meaning of unknown and multiple-meaning words and phrases.

Revisit [Exhibit 3 Lancaster Transportation.pdf](#)

In the lesson body section vocabulary has been integrated: “Identify and /or apply meaning of content-specific words used in the text: using guided notes: hydraulic floor jack, jack stands, creeper, shop

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:

STEPS:

EXPLANATION:

EXAMPLES:

Curriculum Product:

- A written lesson summary included as a lesson plan component or included as part of a power point.
- Evidence that instructors check for comprehension during the summary and re-teach when necessary.

M. Prepare student assessment tools.

Curriculum Products:

- A variety of assessment materials have been prepared with direct correlation to the content specified in the lesson body.
- Administrative observations of teacher performance indicate that pre-planned questions are utilized frequently to engage students and to check for comprehension. Teachers use a variety of quizzes, tests, worksheets, study guides and similar tools to measure

of job sheets, project sheets, or process charts as attachments to the lesson plan.

- Each task, including the performance criteria, is analyzed to determine the sequence of performance steps that would be followed to complete the task on the job.
- In the lesson body or attachment, we add performance steps to the already identified theory topics. The end product is an outline of key points to cover during instruction. This outline serves as lecture or demonstration notes or a content source for a Power Point presentation.
- The workplace requires higher level thinking skills; therefore, a component is added to lesson plans to address the need. A proven strategy is the use of planned questions designed to focus on higher levels of knowledge.
- Research has proven that instructors who do not plan for questioning tend to utilize questions that are on the low end of the knowledge range, producing simple yes or no answers without challenging students.

service light, wheel chock.”

Machine Technology Example:

- Mount wiggler in drill chuck.
- Turn on spindle at 500 to 600 RPM.
- Wiggler will spin erratically when first turned on. Use a smooth object (drill shank or chuck key handle) to steady wiggler point.
- Wiggler will spin evenly at spindle center.
- Lower spindle until wiggler point is just above work piece.
- Visually check alignment of wiggler to scribed lines.

Commercial Art Example:

- Remembering – What are the three primary colors?

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:

STEPS:

comprehension. Teachers use performance checklists or rubrics with measurable criteria to assess performance.

STEP # 3 – USE A VARIETY OF INSTRUCTIONAL DELIVERY STRATEGIES:

- A. Identify common CTE instructional strategies and enhance with research-based strategies recommended by BCTE.
- B. Identify and use all of the steps of the Direct or Explicit Instruction model.

Curriculum Products:

- Evidence that planning materials (lesson plans, competency guides, instructional materials) include evidence of Direct Instruction steps.
- Evidence that teachers use and follow each Direct Instruction step.

EXPLANATION:

- Use Bloom's Taxonomy to plan questions and add to the lesson body. Levels increase in complexity:

Remembering – Recall facts.

Understanding – Organize, compare, interpret, and give descriptions.

Applying – Solve problems by using knowledge in a different way.

Analyzing – Break information into parts; find evidence to support issues.

Evaluating – Present and defend opinions by making judgments.

Creating – Compile information in a different way.

- Many schools include a component to identify materials and resources needed by both teacher and students.
- If a specific book is required, provide the title, author, publisher, edition and page numbers if applicable.
- If handouts are required, make sure the title matches the lesson plan reference, and page numbers are correctly noted if applicable. Attach all handouts to the lesson plan.

EXAMPLES:

Diesel Technology Example:

- Understanding – Can you explain why the radiator cap is removed only after the engine has cooled?

Industrial Machine Example:

- Application – How would you solve the bolt location problem using Trig?

Masonry Example:

- Analyzing – What similarities or differences can you identify in block vs. poured foundations?

Graphics Technology Example:

- Evaluating – Which one is better, two or three column advertisement?

Safety Question:

- Creating – What changes would increase the stability of the scaffold?

Resource: Blooms Taxonomy:

[Bloom's Web Site Link](#)

Health Cluster Example:

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:

STEPS:

EXPLANATION:

EXAMPLES:

Curriculum Products:

- Lesson performance objectives and criteria (standards) have been clearly communicated to students.
- Anticipatory set strategies to focus students on lessons are implemented at the beginning of each lesson. Use materials and tools that maximize student engagement.
- Teacher has developed a theory topic, performance step, and eligible content outline. The teacher has selected or prepared materials that maximize student engagement.
- Teacher models the learning, in small steps, and visible by each student. The teacher should try to include the students in the activity as much as possible. Students can be helpers or participants in the demonstration.
- Teacher frequently checks for understanding through questions,

- List all materials and equipment and provide clear directions for use, as well as, step by step instructions for software and websites.
- Instructional strategies and materials to improve literacy and numeracy are essential components of the lesson plan. Graphic organizers, study guides, and anticipation guides are all included.
- Special education personnel are an integral and indispensable resource to CTE faculty and administration. The laws are complex and lesson plans, materials, and instructional delivery all require focus to maintain compliance. Curriculum components must be discussed with special education staff.
- The law requires a CTE representative to participate as a member of the IEP team with regard to placement of IEP students in CTE programs. Usually a special education specialist will attend these meetings; however, these staff members need CTE teacher input and curriculum details to accurately represent the program and to provide reasonable recommendations.

Resources, Materials, Equipment:

- Text, Health Occupations, Thomson, Delmar learning, 3rd ed., pgs. 690 - 693.
- Power Point, "Transferring a patient from a bed to a wheelchair."

Culinary Example:

Software, [YouTube Resource Link](#), audio-visual clip of step by step instructions on how to make hollandaise sauce

Tools / Equipment,

For each pair of two students:

2 portable burners

Dry side towel

One 2 qt. pot with 2" hot water

One bowl to fit over qt. pot as double burner

Wire whisk

Ladle, 1-2 oz.

Cutting board

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:

STEPS:

choral response, response cards observations, etc. Questions should be pre-planned and directed to specific students in a random pattern to increase engagement.

- Teacher uses guided practice by supervising each student in the performance of the skill or a clear demonstration of the knowledge.
- Lesson is reviewed through a closure strategy – summary. Student response to questions or a structured discussion strategy or activity is preferred.
- Independent practice assigned to each student and evaluated upon completion.

C. Identify and use student engagement strategies.

Curriculum Products:

- Administrative observations of teacher lessons indicate that all students are

EXPLANATION:

- IEP students may require adaptations or accommodations to address the unique needs that result from the student's disability and to ensure access to the program. Special education staff will direct this process.
- The lesson summary, often referred to as closure or conclusion, is a review of what was just taught during the lesson. It is a wrap up to summarize or review the main points.
- If the lesson was completed as planned, the summary is merely an elaboration of what was done and learned during the lesson. A strong strategy is to engage students with questions or have them verbalize what they have learned.
- If the lesson was not completed as planned, student responses during the summary will indicate confusion or lack of knowledge and re-teaching will be necessary.
- Look for areas of confusion to clear up. Reinforce the most important points so the learning is solidified for future lessons.

EXAMPLES:

Examples:

- Many schools utilize the task list to discuss program content or create awareness for unique skills such as identification of color coded wires. Adaptations or accommodations can be implemented; however, the school representative needs teacher input or curriculum knowledge to design the modifications.
- Adaptations: allow student extra time in the lab for equipment observation activity.
- Accommodation: ask IU staff member to sit with student during lecture.

Resource: Special Education Site:
[Special Education Web Site Link](#)

Recreation Vehicle Program Example:

Key lesson points:

- Customer complaints will always

CURRICULUM PLANNING / INSTRUCTIONAL DELIVERY STEPS:

STEPS:

EXPLANATION:

EXAMPLES:

engaged in the lesson or engagement strategies are being utilized.

D. Identify and use Southern Regional Educational Board (SREB) key practices.

Curriculum Products:

- Career and Technology Center (CTC) / high school programs organized and implemented in compliance with the SREB / Technical Centers That Work (TCTW) model.

STEP # 4 – USE ADDITIONAL INSTRUCTIONAL STRATEGIES TO HELP STUDENTS ATTAIN AND UNDERSTAND CONTENT.

Curriculum Products:

- Administrative observations of instructor classroom performance indicate that a variety of literacy and numeracy strategies have been implemented.

- In addition to planned questions, a variety of formative assessment materials are prepared to check for student learning. These can include worksheets, quizzes, tests, papers, performance checklists, rubrics, and cooperative learning activities, oral discussion or other measureable strategies.
- Performance criteria specified in the performance objective is always the standard utilized to prepare assessment tools. Quizzes, tests, worksheets and assignment papers are most often used to measure theory. Performance checklists and rubrics are most often used to measure performance.
- CTE students also take summative assessments such as NOCTI, PSSA, and Keystone exams. Student performance on these assessments is closely monitored and instruction must be adjusted to improve performance.
- Extensive research has identified instructional delivery strategies that improve student achievement across content areas and all grade levels.

be a huge part of a dealership.

- Technicians need to practice the proper techniques to satisfy customer problems.
- Problems must be resolved in a manner that is fair to both parties.
- The technician must be aware of company / manufacturer policies, skillful with questions, able to evaluate evidence, make a decision or secure approval, and treat customers with respect no matter how they react to the technician.

Question:

- Why must a technician be aware of company or manufacturer policies?

[Exhibit 6 Lancaster Veterinary Asst.pdf](#)

Lancaster County Veterinary
Assistant Teaching Plan
A plan that includes numerous examples of Formative assessments including pre-planned questions, lab test worksheet,

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- The Bureau of Career and Technical Education's Technical Assistance Program (TAP) includes the Southern Regional Educational Board (SREB) Technology Centers That Work (TCTW) model and MAX Teaching strategies that are both research proven strategies for planning and delivering standards based lessons.
- Additional reform strategies are available, including Learning Focused Schools, Teach Like a Champion, etc. Minor differences between these initiatives are evident; however, their similarities provide confidence that student performance can be improved no matter what initiative is followed.
- Direct Instruction is one of the most prevalent models for delivering course content in CTE programs. The model prescribes a series of steps that has proven to be most effective in delivering CTE instruction.
- We often assume that Direct Instruction must be teacher driven with students assuming a passive role. That strategy could be employed; however, research has proven that the more students are engaged in every step of instruction, the higher

and quiz.

SREB Resource: (can download from website) www.sreb.org (search publications)
"Advancing Students' Academic and Technical Achievement by Improving Classroom Assessment"

Resource: SAS Keystone Exams Site:
[Keystone Exams Web Site, Assessment Link](#)

Resources:

PDE Standards Aligned System
[SAS Web Site Link](#)

Bureau of Career and Technical Education (BCTE)
Technical Assistance Program (TAP)
[TAP Web Site Link](#)

Pennsylvania CTE Resource Center
[Resource Center Web Site Link](#)

MAX Teaching, Reading and Writing

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the achievement. Therefore, each of the following steps should be implemented using strategies that maximize student engagement.

Direct Instruction Steps:

- Objectives – Precise statements defining what the student will understand, be able to do, or care about, as a result of instruction.
- Standards – Precise statements defining what skills or knowledge are to be demonstrated (Criteria).
- Anticipatory Set – The teacher will focus students' attention on the lesson (purpose or importance). Teacher actions or statements that relate student experiences to prior learning. Create an organizing framework for the lesson (advance organizer, anticipation guide). Improve understanding through examples or analogy.
- Input – The teaching or presentation step that provides the information needed for students to gain the knowledge or skill. The input can be delivered through lecture, computer, audiovisual means, small group instruction, role play, share

Strategies

[MAX Teaching Web Site Link](#)

MAVCC Curriculum Resources

[MAVCC Web Site Link](#)

Technology Centers That Work

[TCTW Web Site Link](#)

Pennsylvania Training and Technical Assistance Network (PaTTAN)
Glossary of Education Terms – see Explicit Instruction, another term for Direct Instruction.

[PaTTAN Web Site](#)

Madeline Hunter ITIP model for Direct Instruction

[Hunter Web Site](#)

Madeline Hunter's lesson plan

[Hunter, Lesson Plan Web Site](#)

Revisit [Exhibit 3 Lancaster](#)

[Transportation.pdf](#), Teaching Plan. It includes numerous examples of Direct

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pair simulation, guided reading, research, etc.

- Modeling – This step is called “I do.” Once the information (input) has been presented, the teacher uses it to show students examples of what is expected as an end product of their work. The teacher demonstrates use of the knowledge or performance of the skill. The task has been broken down into simple steps to facilitate modeling. These steps are sometimes called procedures, learning steps, enabling objectives, chunks, etc.
- Check for understanding – The instructor must be assured the students can do it right before proceeding. The checks must be frequent and implemented with every student. If questioning is utilized, it should go beyond mere recall to probe higher levels of learning such as understanding, applying, analyzing, evaluating and creating.
- Guided Practice – This (we do) step is an opportunity for each student to demonstrate his or her grasp of the new learning by working through it under supervision and corrective direction of the teacher. The instructor moves throughout the classroom or shop to determine the level of

Instruction.

Revisit [Exhibit 6 Lancaster Veterinary Asst.pdf](#)

The instructor has used Bloom’s Taxonomy to preplan questions as checks for comprehension and to move students to higher levels of learning.

SREB Resource: [SREB Web Site](#) (can download from website, search publications)

“Using Real World Projects to Help Students Meet High Standards in Education and the Workplace”

SREB Resource:

TCTW, Kathleen McNally Student Engagement Workshop Power Point
[SREB Web Site Resource](#)

SREB Resource:

Key Practices
[SREB Web Site Resource](#)

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mastery and to provide individual remediation as needed.

- Closure – The step that helps students bring things together in their own minds, to make sense out of what has just been taught. Closure is the act of reviewing and clarifying the key points of the lesson.
- Independent Practice – The (you do) step that is the reinforcement piece that guarantees learning will not be forgotten. It may be work in the shop, homework, group work or utilized as an element in a subsequent project. It should be implemented in different contexts so the skill might be applied to any relevant situation, not only the context in which it was originally learned.
- Research has proven significant increases in student learning if all students are actively engaged or involved in the learning.
- Students are responsible for listening, note taking, responding, helping each other, and being an active participant in the lesson.
- The following are a few engagement strategies:

MAX Teaching Resource:
[MAX Teaching Web Site](#)

“Max Teaching With Reading and Writing, Classroom Activities for Helping Students Learn New Subject Matter While Acquiring Literacy Skills”

SREB Resource: www.sreb.org
(Can download from website, search publications)

“Literacy Across the Curriculum, Setting and Implementing Goals for Grades 6 through 12”

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Choral Responding – All students respond to a question, statement, teacher cue, etc.

Response Cards – Students use a card, small blackboard or whiteboard to respond to the teacher.

Partnering – Students work with a partner to answer a question or problem and arrive at a conclusion to report to the entire class.

Note taking – Students use graphic organizers, study guides, two column notes or similar tools to take notes and organize content.

The SREB Technology Centers That Work initiative has identified a set of key practices that impact student achievement:

- High Expectations – Motivate students by integrating high expectations into classroom practices and giving students frequent feedback.
- Program of Study – Require each student to complete a program that includes a minimum

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number of technical courses and an upgraded academic core.

- Technical Studies – Provide CTC courses in high demand fields that emphasize higher level mathematics, science, literacy and problem solving skills needed in the workplace and in further education.
- Work Based Learning – Integrate CTE learning with work based learning that is planned by employers and educators.
- Teams of teachers – Teams of teachers from several disciplines are provided time and support to work together. Integrate reading, writing, and speaking strategies into both academic and technical components, and integrate mathematics and science into the technical component.
- Active Engagement – Engage students in both the technical and academic courses in rigorous and challenging assignments using research based instructional strategies.
- Guidance – Provide each student with the same counselor throughout high school to assist with

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goals, selecting the appropriate courses, reviewing student progress and implementing appropriate interventions.

- Extra Help – Provide a structured system of extra help to assist students in completing accelerated programs with high level academics.
- Continuous Improvement – Use student assessment, program evaluation data, performance reports, enrollment/retention/placement reports, college remediation reports, student follow up and advisory committee input to continuously improve school culture, organization, management, curriculum, and instruction to advance student learning.
- The SREB Technology Centers that Work initiative, Learning Focused Schools, MAX Teaching, PDE Standards Aligned System (SAS), International Center for Leadership in Education and other reform models provide numerous resources to help students attain and understand content. The internet is also an endless source for materials, tools and strategies to help students.

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- After program content has been identified, instructional plans prepared, and instructional delivery strategies selected; the focus is on implementing additional strategies, sometimes called literacy and numeracy strategies to strengthen instruction and to help students achieve higher levels of achievement.
- These strategies supplement the components discussed previously. They are additional tools or activities that enhance the lesson introduction, body, summary and assessment. They are more creative ways for delivering each step of the Direct Instruction model and they are specific examples of engagement, scaffolding and metacognition strategies.
- Brief descriptions of some of the more widely used strategies follow; however, the list is far from complete and it is not sufficiently detailed. It is simply an attempt to demonstrate how these strategies supplement curriculum planning and instructional delivery.
- Anticipation guides prepare readers by asking

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them to react to a series of four or five statements related to the content of the material. By asking students to agree or disagree with these statements, a teacher determines what students know (and don't know) about a topic. This strategy can help generate discussion on a topic, identify students' experiences with the topic, and uncover misconceptions.

- Cloze is a strategy that helps students learn to predict unfamiliar words. To create a cloze activity, delete predictable words throughout a reading passage. Students read around the passage and fill in the blanks with words that make sense and sound right. This strategy builds vocabulary and improves comprehension.
- Graphic Organizers are simple graphic representations of verbal statements. They show at a glance the key parts of the whole and the relationships to each other. A graphic organizer helps students analyze and comprehend the "big picture."
- K.W.L.S. charts help students draw on what they already know about a subject, focus on what they want to know, and identify what they've learned

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and still want to know. Students use the K.W.L.S strategy to transfer prior knowledge to connect with new information. They respond to four statements, “What I Know,” “What I Want to Know,” “What I learned,” and “What I Still Want to Know.”

- **Learning Logs** help students to reflect on what they have just read, discussed, or experienced. They stimulate discussion related to the day’s topic and help students integrate content and process. Unlike journal writing, log writing covers the content being studied and not just personal feelings or impressions. Students will write each day about the topic they are studying, the experiments they are conducting, or the projects they are undertaking.
- **Pairs – Read** is a strategy to increase reading retention. Working in pairs, one student reads a paragraph (s) aloud, and the other paraphrases what he or she has just heard. This strategy combines auditory and visual learning styles. It also teaches the skill of summarizing.
- **Structured Note Taking** is an excellent strategy for helping students select, organize, and

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remember important points from their reading. Students use visual organizers (study guides) with major headings or outlines to make notes of key points. The visual framework prepared by the teacher helps students determine which details are important.

- **Venn Diagrams** are useful for comparing and contrasting two items that share common characteristics. The diagram consists of two overlapping circles. Each circle represents a single element. In the space where the two circles overlap, students write the similarities with unique traits included in the outside areas.
- **Think–Pair–Share** is a cooperative learning strategy that pairs two students in the process of answering a question or solving a problem. Each student works on the question or problem independently for a specified period of time. Both students will compare their answers as a team and resolve any differences arriving at a response agreeable to both. One of the students will then report the agreed upon answer to the rest of the class.
- **Cornell Notes** is a structured note taking strategy

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using a two-column format. The paper is divided in roughly a 1/3rd and 2/3rd format with the main ideas listed on the left side and the details on the right larger section. In most cases the teacher may print the note taking forms with the main ideas inserted prior to the lesson and direct student to complete the details from the presentation. Power Point presentations are also very effective with this strategy.

- **Jigsaw** is used to cover large amounts of material in a short timeframe. Divide students into groups or individually. Breakdown the material that is to be covered into manageable pieces (paragraph, chapter, unit etc.). Assign each group or individual a segment of the material. Have student take notes using the two-column form or a study guide and then present their notes to the entire class.
- **Sequence/Flow Charts** are graphic organizers that visually show the key points or steps in a process or task completion. They help students follow steps in a sequential process or activity.
- **Summarizing** is a key thinking skill that impacts achievement. When students summarize, their

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confusions, misconceptions, or misunderstandings surface and the teacher can then adapt re-teaching accordingly.

- **Word Walls** are organized collections of key vocabulary targeted for study. They are not just used for display, but referred to and used continuously.