

iCEV Principles of Education and Training

Knowledge and Skill Statement	Student Expectation	Breakout	iCEV Citation		Lesson Name	New Location
			Narrative/Activity	Type of Citation (New Content/New Citation)		
(1) The student demonstrates professional standards/employability skills required by the education profession and related occupations. The student is expected to:	(B) perform job-appropriate numerical and arithmetic applications;	(i) perform job-appropriate numerical applications	Narrative	New Content	Employability Skills in Education	Student Handout- Educator Use of Numeric Applications (Page 2)
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(1) The student demonstrates professional standards/employability skills required by the education profession and related occupations. The student is expected to:	(K) identify effective work ethic practices.	(i) identify effective work ethic practices	Activity	New Content	Employability Skills in Education	Activity- Applying Workplace Behaviors & Skills (Pages 6-7)

Educator Use of Numerical Applications

Educators will use numerical and arithmetic applications when they are working with students, fellow educators, or administration. These employability skills are useful tools as educators may use them frequently in their professional life.

- Examples of when math is used by educators include the following:
 - counting the number of students on a field trip
 - counting copies to insure the correct number of student handouts available for students
 - ratio of students to adults when outside for recess
 - arranging desks within a classroom for optimal learning
 - calculating test scores
 - applying a curve to an assignment or test
 - calculating percent growth of a student over the course of a school year
 - pre and post tests

Educator Practice Scenarios

1. Mrs. Morris is taking her first grade students on a field trip to the local zoo. In the morning prior to leaving, one student are reported as absent of the 25 students in her class. She will need to divide the 24 students into groups of four. Mrs. Morris will have six groups of students.
 - $25 - 1 = 24$ students
 - $24 / 4 = 6$ groups of students
2. Mr. Dell is the principal at Lakeside Elementary school. He has to make sure there are two adults for every 30 students when outside. There are 120 students in grades kindergarten through second grade who go out for recess together. Mr. Dell will need to eight adults to outside during recess.
 - $120 / 4 = 30$ students
 - $4 \times 2 = 8$ adults
3. Mrs. Hernandez is a high school algebra teacher who needs to calculate student growth for her end of year report. The average student score on the pretest for algebra was a 25 out of 50 which is a 50 percent. The average end of year post test score was a 35 out of 50 which is a 70 percent. Mrs. Hernandez students overall had 20 percent growth in algebra based on pretest scores.
 - $25 / 50 = 50\%$
 - $35 / 50 = 70 \%$
 - $70 - 50 = 20 \%$

Educator Numerical Scenarios

Activity Overview:

You will perform job appropriate numerical and arithmetic applications for the following scenarios.

Directions:

1. Mrs. Gibson is an elementary school teacher. She has 23 students in her class. She wants to make sure she has desks arranged in 5 pods of students. How many pods of three will Mrs. Gibson have in her classroom?
 $20 / 5 = 4$ pods
 $23 - 20 = 3$ students
1 pod of students will have 3 students
2. Mr. Ramirez is a high school social studies teacher. He allowed students who turned in all assignments throughout the unit to earn an extra 10 points on their unit final assessment. Tina turned in all assignments throughout the unit and earned 75 points of 100 possible points on the unit final assessment. What is the number of points Tina will earn on her final assessment?
 $75 + 10 = 85$ points
3. Ms. Hansley is a middle school principal. She will be taking 100 students on a field trip to the local science museum. She has 25 chaperones for the field trip. How many students will Ms. Hansley have in each group?
 $100 / 25 = 4$ students per group
4. Mr. Rogers will be hosting professional development workshop for agricultural teachers on turfgrass. He has 22 copies of the turfgrass analysis ready for the meeting. He has learned 35 teachers have registered for his workshop. How many more copies of the turfgrass analysis will Mr. Rogers need?
 $35 - 22 = 13$ copies of the turfgrass analysis
5. Mrs. Hawkins is a high school family and consumer sciences teacher. She has students take a safety and sanitation test prior to cooking in the kitchen. Students take a pre test over safety and sanitation, if students score an 80 % or higher on the pretest students do not have to take the unit final assessment. Paul answered 80 out of 100 questions on the pretest correctly. Will Paul have to take the unit final assessment?
 $80 / 100 = 80$
 $80 \times 100\% = 80\%$
Paul will not have to take the unit final assessment.

Problem-Solving Techniques

All careers encounter challenges. Challenges vary by setting, but may include miscommunication or lack of effective communication, adapting to various learning populations, and maintaining knowledge of trends and technology. Problem-solving refers to the ability to produce an appropriate solution when a problem arises.

Some beneficial skills or techniques to utilize during problem-solving include decision-making, creativity, analysis and conflict management. Thinking quickly and justifying the decisions made in the problem-solving process may also be necessary. Problem-solving requires confidence, persistence and flexibility. Implementing problem-solving techniques promotes a higher level of thinking and reasoning. One may find it necessary to apply a variety of techniques at once to achieve a solution. These techniques may be incorporated in various stages of the problem-solving process, which include:

1. Developing a plan
2. Carrying out the plan
3. Modifying the plan, if necessary
4. Seeking alternative solutions
5. Checking for reasonableness

Problem-solving techniques are the means to identify problems, brainstorm possible solutions and assess the plan of action. The techniques vary in complexity and use and, therefore, are implemented in different circumstances. A few examples include SWOT analysis, five whys, and six thinking hats.

SWOT analysis includes four categories of assessments to identify strengths, weaknesses, opportunities and threats. A SWOT analysis could be performed on a routine basis to analyze the progression of a problem. For example, Mr. McMahon, a school principal, identified lack of effective communication as a weakness for a portion of the staff. He implemented regular check-in meetings and progress reports to enhance communication. At the end of the school year, he evaluated that lack of effective communication was no longer a weakness of concern. To eliminate this problem in the future he wants to maintain some of the practices that were introduced.

The five whys enhance research based on cause and effect by requiring to ask the question “why?” five times. The cascading answers to each “why?” becomes the root of the next question. For example:

1. Why were grade reports not submitted on time? Not all grades were collected.
2. Why were grades not collected from all students? Some students have not completed the assignment.
3. Why are some students still working on the assignment? There was an emergency procedure drill following a school assembly which did not allow ample time for all students to complete the assignment.
4. Why were the regular class disruptions not allotted for? The school assembly was

Problem-Solving Techniques

scheduled and planned for, but the emergency procedure drill was completed randomly.

5. Why are random emergency procedure drills performed? The district believes staff and students should be better prepared for all safety protocols.

Six Thinking Hats is a problem-solving technique focused on engaging in different thought patterns. This method utilizes the visual of six different colored hats to represent various functions. For example, the white hat serves to gather information, the red hat enhances thought through feelings and intuition, the yellow hat focuses on the benefits, the black hat analyzes the risks and potential challenges, the green hat provides a sense of creativity and encouragement, and the blue hat acts as the controller of the process. The six thinking hats could be used in a team setting to brainstorm best practices to adapt to various learning populations. Allowing each individual to present information based on their role provides the team a well-rounded perspective to implement an informed problem-solving technique to their issue.

Problem-solving techniques can be shown by wisely handling conflict between students, finding ways to overcome an instructional issue, quickly and efficiently resolving issues or meeting needs in the classroom as they arise. Regardless of the problem, it is imperative to implement problem-solving techniques to achieve a solution.

Applying Workplace Behaviors & Skills

Activity Overview:

You will review common work place scenarios and brainstorm a list of possible solutions to these problems while using critical thinking skills to resolve the conflicts.

Directions:

1. Analyze the following workplace scenarios and work through the problems to offer solutions to each. Be prepared to discuss your answers as a class. **Answers may vary. Suggested answers provided.**
2. Mrs. Martinez is feeling extremely overwhelmed and stressed with her current work load and is struggling to feel like she is managing her time efficiently. What could Mrs. Martinez do?
Mrs. Martinez needs to develop a way to reduce her stress and use her resources to help manage her workload and time. She needs to stay positive and set boundaries between work and home stress. Working on one task at a time may help with time management as well.
3. Mr. Johnson's students, Julie and Stephanie, are having difficulty getting along while working on a group project and often disagree. What advice could Mr. Johnson offer them?
Julie and Stephanie need to brainstorm and come up with as many solutions as possible. They also need to try out all possible solutions and use solutions which have worked in the past. Also, they need to use their teamwork skills and use conflict resolution to recognize different points of view. Lastly, they need to look at the conflict objectively and focus on the problem and not each other.
3. In Mrs. Kimball's annual evaluation with her principal she was told that it felt like her work ethic was lacking this year because she had many days she showed up late for class, was missing deadlines for turning in lesson plans, and had not participated in any of the mandatory staff training. What could Mrs. Kimball do to improve her work ethic?
Mrs. Kimball could improve her work ethic by making an effort to be more engaged with her work by showing up on time and meeting deadlines. Also, in addition to completing the mandatory trainings, she could be sure to ask questions in the trainings.
4. Mr. Chao is extremely frustrated because his co-workers have taken credit for all of the hard work he has put toward aligning the curriculum used in their classrooms to national standards. What can Mr. Chao do?
Mr. Chao needs to use his teamwork and conflict resolution skills. Also, he should stay positive and keep taking the initiative on projects. He should

Applying Workplace Behaviors & Skills

use effective communication to let his co-workers know how he feels.

5. Mrs. Taylor has been appointed to lead a team to evaluate different curriculum options for her school to use. Her team has been presented with several different options. What should Mrs. Taylor do?

Mrs. Taylor needs to utilize problem solving techniques such as a SWOT Analysis or the Five Whys? and critical thinking to determine a process for herself and her team to evaluate each option. Additionally, she will need to have a good work ethic and leadership skills to make sure her team stays on task and completes the reviews as needed.