EDU 320 – Synthesis Paper

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Throughout this summer semester, the importance of being an effective teacher through scaffolding information and curriculum has been a reoccurring theme. There are countless resources that can help in this process of becoming an effective teacher. There is no denying how connected curriculum is to helping students become successful. Not only does it take understanding each student but varying instruction to meet the needs of every student. This can be done through using direct and indirect instruction, meeting goals, stands, and objectives through effective unit and lesson planning, implementing technology, using questioning strategies, and always assessing students. The role of an educator is extremely important and this just covers how to effectively teach curriculum instruction and assessment.

The Effective Teacher

Description

Many factors go into what makes an effective teacher. These factors include a wide range of qualities like disciplining, classroom layout, knowledge, teaching abilities, knowing their students, scaffolding, etc. Throughout this class, it was seen that an effective teacher relies heavily on their interactions with students and the content taught throughout the schoolyear.

Artifact

A really great way to ensure that there are student/teacher relationships forming is to be available to students. Sometimes the hardest students to reach are the ones that struggle trusting an adult. By adding drop off boxes where students can write their concerns, where they need help, what they need help with etc. the teacher can then respond to these notes efficiently. This will help students more discreetly ask for help (Appendix A). This will foster that personal connection between student and teacher.

How it Will Be Used in Classroom

In order for these teachers to be effective, they need to help their student succeed (Wong 8). Teachers are made great by being effective listeners. If educators were hired as masters of understanding, rather than masters of content, the education system would be very different. Often, students need that personal connection more than the content. "The effective teacher is committed to regarding all students as able, valuable, responsible, and possessing untapped potential in all worthwhile areas of human endeavor" (Wong 59). If students feel valued, respected, and listened to in the classroom they are able to learn. Students will respond better to compassion and a trusted person than to someone who is intelligent but cold.

This can be done by incorporating student choice in the classroom and within assignments. Include students in decorating the classroom, sharing stories, writings, drawings out loud, talking about family traditions, holidays, etc. are all ways to ensure students feel heard, valued, and supported. Providing specific encouragement and kind words are small, but important ways to grow self-confidence, make students feel capable, and loved.

Understanding Your Students

Description

Getting to know students and being able to adjust teaching methods in order to help students become successful should be the first priority of every educator. This can be done a variety of ways. First impressions and persistence are key with many students. Students have to feel safe and know that their teacher really cares for them and wants them to succeed. It is important for the teacher to be aware of the multiple intelligences, learning styles, interests, skills, diversity, and content knowledge within the classroom. This can be monitored by daily feedback on homework assignments and performance assessments.

Artifact

Within the first week of school it is important that the teacher introduces themself to the class, in depth. From there, a foundation of trust can be built. By handing out "Get to know you" sheets for students to fill out is a great way to learn more about each student (Appendix B). If the teacher remembers and uses the information on the sheet to their advantage, the students will feel seen, heard, and supported.

How it Will Be Used in Classroom

Throughout the school year it is vital to maintain this relationship. For elementary teachers it is often easier to keep track of every student's behaviors, tendencies, preferences, strengths, weaknesses, etc. Teachers should create small profiles for each student using this information. Not only will this be beneficial for the teacher throughout the schoolyear, but also for the student, their parents, and their future teachers. This profile can be created by collecting assignments, the "get to know you" worksheet, artwork, journal entries, teacher observations, etc. From there, teachers must scaffold information to fit these students' needs so that learning and growth can pursue.

Differentiating instruction is absolutely vital. Teachers must be flexible and willing to adjust for their students. This can include grouping students, having a variety of learning centers that play to different learning styles, providing student choice, and scaffolding questions.

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Goals, Standards, and Objectives

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Description

It is important to note the differences between goals, standards, and objectives before they can be fully understood and applied in the classroom. Goals refer to the direction and general aim given or strived for. Standards stem from goals. Standards refer to what students should know, what must be accomplished in order to meet goals. Objectives refer to what the teacher expects the students to know, gain, and do at the end of instruction. Objectives follow a

when, what, how line of questioning. "When," allows the teacher to create a timeline for when

standards must be completed. "What," allows teachers to lay out exactly what the students need

to know from the standard. "How," allows the teacher to create options for the students to be able

to show their understanding of the standard.

Artifact

To better grasp these concepts, I wrote these three terms in my own words while

incorporating information from peers and Dr. Cain (Appendix C). I also took a standard and

created objectives for the standard while using Bloom's Taxonomy.

How it Will Be Used in Classroom

Goals, standards, and objectives will always be used within the classroom. When creating

lesson plans, teachers must be striving for goals which can only be achieved by following

standards and creating objectives. Lesson planning is how educators stay organized, effective,

and help keep students on track. When a lesson is well thought out and planned ahead for, the

day can run much more smoothly.

<div align="center">Unit and Lesson Planning</div>

Description

Both unit and lesson planning pull from the experiences and learning needs of the

students in order to create effective plans. Each school year, these unit and lesson plans will be

altered, depending on the students. However, reaching/meeting specific standards rarely change.

Teachers must modify teaching strategies depending on students' prior knowledge, attitudes,

motivation levels, different levels of development, etc.

Artifact

Unit and lesson planning will and should occur in every classroom. Lesson plans should be detailed, allow flexibility, and always be improved upon. The best way to improve unit and lesson planning is through practice (Appendix D).

How it Will Be Used in Classroom

Good unit and lesson planning play a huge role in creating an effective classroom and successful students. Lesson plans should flow together neatly and coherently. A string of lesson plans can create a unit plan that can be implemented into the classroom. When students follow a unit plan, there is direction, a guide, and less confusion. It is the teacher's job to ensure the students understand each lesson before moving on.

Technology Integration in Instruction

Description

Technology integration in the classroom can either enhance learning or become a distraction. It is important to avoid the latter. When technology is incorporated in the classroom effectively, students can improve communication skills, creativity, interpretation/comprehensions, and learn to transform information into knowledge and skills.

Artifact

For mathematics it is always easier to rely on the textbook or worksheets when practicing and learning new concepts. However, by showing a video and using math manipulatives, students can be fully immersed in their learning (Appendix E).

How it Will Be Used in Classroom

Successful technological integration is when students play an active role in their learning and receive frequent personalized feedback from their teachers and, even sometimes, their peers. It also includes students critically analyzing and actively creating media messages to stimulate critical thinking and creativity skills. When technology is used correctly in the classroom,

students can make connections from their learning inside the classroom to the world outside of school.

Technology can be incorporated in numerous ways. Allow students to create music, art, films, podcasts, etc. When students post online there is an authentic audience that is reacting, learning, and engaging to what they put out there. Incorporate videos, math manipulatives, Prezi, etc. to enhance learning in the classroom.

Questioning Strategies

Description

There are seven purposes of asking questions. These include (1) getting interest and attention of students, (2) diagnosing and checking, (3) recalling information, (4) management tactics, (5) encourage high-level thinking, (6) redirecting learning, and (7) allowing expression of affect. When asking students questions it is good to form questions at different levels of cognitive complexity.

Artifact

The most efficient way to implement questioning strategies is through practice (Appendix F). Questions lead to deeper thinking and deeper understanding of concepts. Often, when questions are given frequently, students tend to remember and recall information with more ease.

How it Will Be Used in Classroom

This can be used within the classroom on a daily basis. Asking a question to get the students' interest is a great way to start any lesson. Piquing interest within students gains their curiosity and heightens levels of motivation. When questions to diagnose and check progress, teachers are ensuring students are paying attention and are remembering the correct information. By constantly checking in on students, they are forced to think of the answer and that answer becomes more engrained in their minds. When asking questions to recall specific facts, it can

show students what is truly important. When questions need a specific answer, students can easily see the importance of that fact/specific piece of information. When questioning is used to manage the classroom, students are given extra reminders. This is another great way for teachers to point out what information is important. Encourage higher-level thinking by asking deeper questions that force students to dig deeper and push past their comfort zones. Questions can be used to help redirect learning. For example, switching or connecting one concept to another can be used through lines of questions. By questioning to allow expression of affect, students can ask final questions before the teacher moves on.

Teaching Strategies for Direct Instruction

Description

Direct instruction is classified as a type one learning outcome. Direct instruction includes facts, rules, and action sequences. It also fits into the knowledge, comprehension, and application levels from Bloom's Taxonomy. Direct instruction is more teacher-based, rather than student-based learning. Or is also known as, "Active teaching." This is done through presentations and recitation.

Artifact

An effective way of direction instruction begins with an explanation, providing examples, practice, and providing feedback. This instruction should be created and prepared for beforehand (Appendix G).

How it Will Be Used in Classroom

Direct instruction is frequently used in today's classrooms. Often times, it can be overused or used the wrong way. Although direct instruction allows for material to be covered much faster, there is often no real engagement with the students. In order to successfully

implement direct instruction, it is important to present goals/main points, present all concepts in sequential order, be specific and concrete, and always check for understanding.

Direct instruction can be incorporated within the classroom through effective PowerPoints. This means having quality presentation skills, like having discussion, provide notes to students, maintain eye contact with the students, speak clearly, and it can be beneficial to record lectures that students can refer back to. PowerPoints should be visually pleasing, have large font, are simple, limited amount of text, easy to read, etc.

Teaching Strategies for Indirect Instruction

Description

Indirect instruction encourages students to explore their interests and improve students' thinking abilities. Indirect instruction targets the higher Bloom's Taxonomy levels, like synthesis and evaluation levels of the cognitive domain. Indirect instruction is more student focused, rather than teacher-based. This type of instruction can tie into direct instruction and is common for projects and inquiry-based learning.

Artifact

An effective way to implement indirect instruction is by allowing students to be creative, allowing for flexibility, and encouraging responsibility. However, an outline, some direction, and goals should be set out beforehand (Appendix H).

How it Will Be Used in Classroom

Indirect instruction can be incorporated in the classroom in numerous ways. Inquiry-based is the most common and most natural. This process encourages curiosity. It begins with a problem, or "Essential Questions," then hypotheses form called "lines of inquiry," collect data. Brainstorm solutions, formulate questions, research/investigate, analyze and interpret the data to test the hypotheses, discuss findings, then reflect, draw conclusions, and present results. This can

improve cooperative learning, allowing students to work together, simulations can be used to help students solve real life problems, etc. Having different zones within the classroom like a discovery zone, mathematics zone, reading zone, etc. can allow students to work individually and in small groups through indirect instruction. Project-based learning, while very similar to inquiry-based learning, is another great way to incorporate indirect instruction.

Assessing Learners

Description

Assessing students is an essential part of measuring success within the classroom. There are four forms of assessment: pre-assessment, formative assessment, summative assessment, and performance assessment. Pre-assessment is a way to determine students' previous knowledge on a topic. Teachers often use this information to make adjustments to their instructions depending on student's current understanding and needs. This often helps teachers when grouping students, as well.

Formative assessment is tracking students' progress and understanding throughout a unit. This can be done through a number of ways. The goal is always to test students' knowledge and use that information to determine if concepts need to be retaught or reinforced before the summative assessment.

Summative assessments are used to evaluate students' learning and understanding, usually at the end of a unit. This type of assessment is done through testing and scores are recorded into permanent records. Performance assessments are relatively similar. Performance assessment is another form of testing that allows students to apply knowledge from class to complete a task.

Artifact

Teachers can implement assessments easily throughout a regular classroom day. Often, pre-assessments are used before beginning a lesson, formative assessments are given at the end of a lesson, then performance and summative assessments are typically given at the end of a unit (Appendix I).

How it Will Be Used in Classroom

Within the classroom, teachers can pre-assess students by using KWL charts, writing prompts, initiating activities, etc. A quick questioning of students allows for teachers to get a quick grasp and insight to where the students' previous knowledge lies. Formative assessment can be given as exit slips, homework assignments, discussions, etc. Summative assessments can be given as tests or papers. While performance assessments can be writing a poem, a rap, creating a painting, etc. There is flexibility within all forms of assessment which should be utilized.

<div align="center">Conclusion</div>

There have been multiple takeaways from this course, for me. I loved getting to further develop my lesson planning skills. I realized how truly vital it is to differentiate learning which can only be done after getting to know the students. I learned that it is so important to take learning to the next level. Humans are not uniform; we all learn in a multitude of ways. However, we all crave that education. This course really gave me an inside look of how to make learning engaging. I learned how to take my ideas of how I want the education system to work/be effective and make it a reality. All of the artifacts in my appendices are ones that I know I can use, or at least refer to, in my future career. I loved learning how to become the teacher I want to be.

References

L Borich, Gary D. (2017). *Effective teaching methods: Research based practice.* University of

Texas at Austin: Pearson Education, Inc.

Wong, H. K., & Wong, R. T. (2018). *The first days of school: How to be an

effective teacher* (K. Sturak, Ed.). Harry K Wong Publications, Inc.

Appendix A

This box allows for students to discreetly ask for help. While teachers should always be available to talk in class, answer questions, give advice, etc. it can often be difficult for students to ask for big help. This box should be checked at the end of each day and responded to within the week. This is really a simple way to help students feel safe and know that they can ask for help at any given time. This is also a really good option for school counselors and can easily be placed throughout the school.

Appendix B

This tool is one that should be utilized at the beginning of the year to document students'

interests, get a sense of what their home life is, dig a little deeper into who these students are

inside and outside of the classroom. This tool can be updated every year to collect new

information and get to know students as they learn and grow.

Appendix C

Haley Luke

One Standard and Objectives

4.MD.3 "Apply the area and perimeter formulas for rectangles in real world and mathematical problems."

Objectives:

- Students will be able to recognize the perimeter and area formulas for rectangles by the end of this chapter (Bloom's Taxonomy: Knowledge stage)

- Students will be able to classify the length and width of a triangle (Bloom's taxonomy: Analyze stage)

- Students will be able to connect this knowledge when solving math problems and real-world problems through using real world materials and examples to apply the area and perimeter formulas for rectangles (Bloom's taxonomy: Analyze stage)

(I.e. Have students go home and measure and apply the formulas to household objects)

Goals: General expressions of our values that give us a sense of direction.

(Doing things for an achievement or accomplishment for which certain efforts are put. Something you hope to achieve.)

Standards: Are derived from goals to specifically identify what will be learned-energize and motivate.

- Developed from national academic standards
- Written by local educators and consultants
- Offer guidance in core curriculum areas, while allowing ("encouraging") curriculum created at the local school district level.
- Revised periodically
- Supported by state policy makers
- Every 2 years something education related happens
- Are not mandatory but are aligned with state assessment

(Uncompromising way to live your life. Define our actions and behaviors. Uncompromising expectations that must be met. Kind of like rules.)

Objectives: Convey the specific behavior to be attained, the conditions under which the behavior must be demonstrated, and the proficiency at which the behavior must be performed.

(Specific targets within a goal, time-related to achieve a certain task.)

- WHEN-give timeline of when student should know standard
- WHAT-what do students need to know (from standard)
- HOW-how will students demonstrate that they know the standard (this is where you put your own spin on it, allow choice, etc.)

Standards and objectives are frequently used within the classroom to reach goals. It is vital to understand these terms before applying them in the classroom and in lesson plans. Using Bloom's Taxonomy helps in determining the level of understanding for each objective. By constantly writing and improving objectives to fit standards, a teacher can become much more effective in pushing students toward reaching classroom goals.

Appendix D

This is a personal example of a lesson plan for a mathematics lesson. As seen on this artifact, the standard and objectives are stated clearly. There are step-by-step instructions to ensure efficiency, however; there is also a lot of flexibility to stray from these instructions, if necessary. Having a backup plan and a reflection on the lesson plan template, allows for teachers to not back themselves into a corner and constantly tweak and expand upon their lesson plans.

Lesson Plan Template

Grade: 4th | **Subject:** Mathematics

Materials: whiteboard, expo markers, paper, pencils, deck of cards for grouping students, the perimeter formula, and the area formula of rectangles, graham crackers, keep the graham cracker box, four rectangular books, and work sheets about perimeter and area. Individual computers for students to access math manipulatives online.

Technology Needed: Projector screen to show the directions on the board and the area and perimeter formulas. Computers for students to access math manipulatives online. (http://nlvm.usu.edu/en/nav/category_g_2_t_3.html)

Instructional Strategies:

- ☐ Direct instruction
- ☐ Guided practice
- ☐ Socratic Seminar
- ☐ Learning Centers
- ☐ Lecture
- ☐ Technology integration
- ☐ Other (list)

- ☐ Peer teaching/collaboration/ cooperative learning
- ☐ Visuals/Graphic organizers
- ☐ PBL
- ☐ Discussion/Debate
- ☐ Modeling

Guided Practices and Concrete Application:

- ☐ Large group activity
- ☐ Independent activity
- ☐ Pairing/collaboration
- ☐ Simulations/Scenarios
- ☐ Other (list)
- ☐ Hands-on
- ☐ Technology integration
- ☐ Imitation/Repeat/Mimic

Explain: Pairing/collaboration activity: use the cards, have students pick a card at random, groups are chosen by whoever has the same number or face card, there should be 4 to a group. Independent activity: when writing their examples from their lives. And when students work on their computers.

Standard(s)
4.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

Differentiation
Students will be paired into groups of 4. Even though they are a mix of below, approaching, and above proficiency students they will all contribute, ask questions, collaborate, apply to their own lives, etc. (If further instruction is needed, there are videos available to the students)

For the individual work I will...

Below Proficiency: Ask for students to write, draw, explain, bring in pictures of, etc. At least 3 everyday objects, situations, or scenarios that they can apply the area and perimeter formulas for rectangles.

Above Proficiency: Challenge these students to find at least 3 objects at home they can "break down" to apply the area and perimeter formula for rectangles. They will write down and turn in which objects they have in mind. Then, they will go home and attempt to solve. Once they have solved, they will create a word problem, show their work, and solve the problems they predicted.

Approaching/Emerging Proficiency: Have these students write a list of at least 5 objects, scenarios, situations, etc. That they can apply the area and perimeter formula for rectangles. They will then create 2 problems on their own using the objects, scenarios, situations, etc. on their list. They will not have to solve on their own, can bring back to class to solve in class. (Create)

Computers for Every Student: All students will start with the first Geoboard until they feel they have mastered it. If they are comfortable to move on, they must show their

Objective(s)
Students will be able to...
1) Recognize the perimeter and area formulas for rectangles.
2) Classify length and width of a rectangle.
3) Use the formulas on provided materials.
4) Apply this knowledge to math problems and real-world problems.
5) Use technology responsibly and effectively.
6) Work independently, increasing, and improving their knowledge.

Bloom's Taxonomy Cognitive Level: This ranges from the first stage, remember, to the final stage, create.

Lesson Plan Template

mastery by getting 3 consecutive problems correct. Then, they will move on to Geoboard – Circular. Again, if they feel confident, they must show their mastery by answering 3 consecutive problems correct. Then, they can move on to Geoboard-Coordinate. If they feel confident, they must show mastery by answering 3 consecutive problems correctly. Then, they can move on to the final Geoboard – Isometric. Mastery is still shown by completing 3 consecutively correct. The first Geoboard covers what was discussed in class, the following 3 go above and beyond. Proficiency is measured by the students' choices and willingness to keep going.

Modalities/Learning Preferences:
Visual Intelligence: The students will be able to see the objects in 3D before them. Videos will be available for further explanation.

Students will be able to see and manipulate shapes to create their own problems to solve.

Linguistic Intelligence: Students will take the formulas and apply them to their lives by writing it down.

Interpersonal Intelligence: Students will work together in groups, collaborating, talking, and sharing.

Intrapersonal Intelligence: Students will do independent work when applying to their lives and when working on their math manipulatives.

Logical Intelligence: Students will use logic and reasoning to create examples and determine solutions to their formulas.

Kinesthetic Intelligence: Students will be able to interact, hold, physically hold, manipulate, etc. with the objects they are using to determine their area and perimeter.

Classroom Management- (grouping(s), movement/transitions, etc.)	Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.)
Students are expected to... • Small groups • Active listening • Voice levels need to stay around a 2 or 3 • Everyone shares and takes turns • Everyone participates • Treat materials with care • Apply our basic classroom rules (hands to yourself, be kind, be considerate, be respectful, etc.) • Always put materials back where you found them • Everyone helps • Transition (ring the bell, play a song to use for cleaning) • Clean up • Individual work • Voice level at a 0 • Turn and talk (voice level at a 2) • Turn in and pick up your homework assignment sheet based on where you are at	Students are expected to... • Work in small groups quietly and productively • Be active listeners to their peers and the teacher • Keep voice levels around a 2 or 3 during group work • Share/participate, takes turns, be encouraging to others, etc. • Treat the materials with care • Apply our basic classroom rules (hands to yourself, be kind, be considerate, be respectful, etc.) • Always put materials back where you found them • Help in the cleaning process, help their peers, and help themselves • Transition when the bell rings and finish cleaning their areas when the clean-up song is complete • Work individually quietly and productively • Keep voice levels at a 0 during individual work • Treat computers with care • Work on the computers diligently

Lesson Plan Template

	• Participate in turn and talks while keeping voice levels at a 2 • Turn in and pick up their homework assignment sheet based on where they are at (proficiency level)

Minutes	Procedures
15-20 minutes	**Set-up/Prep:** (1) Make sure there are about 10 expo markers and the white board is clean. (2) Have the perimeter formula of rectangles, (P = l + w + l + w = 2l +2w = 2(l+w), and the area formula of rectangles, (A = l x w), written down somewhere for only you to see to correct the students if needed. (3) Have a deck of cards handy so when it's time you can sort the students into groups of 4, each suit is in the same group. This will add variety to their usual seat grouping and ensures no one is left out. If you only have 20 students take out suits so there are equal groups. (4) Set up 4 stations. One has four graham crackers, the other has the graham cracker box, the third has a book, and the fourth station has the computers. Can use notecards, post-its, or even images to mark each station. (5) Have the worksheets printed out and ready to be passed out. (6) Have the math manipulatives pulled up on the computers.
20 minutes	**Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.)** Once the students are all seated. Ask them, have you ever measured an object? (Getting interest/attention) Allow them to answer, ask them to describe how they did that, what tools did they use, etc. (Diagnosing and checking & Knowledge) Have them each pick a card from the deck, have them split into groups based on their suit. Once the students have settled into groups explain the game. Each group is a team, give them 30 seconds to pick a name. Write the team names on the board in order to keep track of points. Ask the students to classify the two formulas needed to measure an object? (Recalling specific facts & Understand) This is their first assignment: the students have 5 minutes to remember what the perimeter formula is, send one person from the group to the board, write the answer, then sit down. To deter cheating, play quiet music in the background and have all the students write the answers at the same time. If they struggle to remember you can allow them to use their notes. Repeat this with the area formula. Correct the formulas then write the correct ones large on the board. Have the students write them on their own worksheets if needed.
2-5 minutes	**Explain: (concepts, procedures, vocabulary, etc.)** Now explain the next stage. Each group will visit the stations around the room, everyone has to take turns measuring, inspecting, etc. (Apply) Students will take turns at the computer station. Explain that the students will have to raise their hands before moving on to the next Geoboard and show that they mastered the concept by getting 3 consecutive problems correct. If the students have finished their tasks, or gone as far as they can, then they can play a game on cool math games. (https://www.coolmathgames.com) Walk around the room and make sure everyone is participating and getting along. If the students have questions be sure to be available to help answer any questions they may have. Make sure to check on all the students before each transition by asking, does anyone want some extra time or help? Did everyone finish at their station? (Managing)
30-40 minutes	**Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)** Each student will hand in their papers with their answers, you collect them, then have them take their seats, then ask them to take out a sheet of paper and write down five different ways they can use this information and connect it to the real world. (Encouraging higher-level though processes, Analyze, & Evaluate). Ask, does anyone want to share their examples to summarize what was learned? Once they have all finished this task have them write their answers on the board, each taking turns using the markers then handing them off to the next person. (While the students are doing this grade their answers, tally their correct answers under the correct teams.)
10 minutes	**Review (wrap up and transition to next activity):** While the students finish writing everything on the board, read aloud the answers provided this will help give each student a sense of pride for the answers they wrote on the board, then tally up the points for each team, again read aloud the total points. Whichever team has the highest score gets a piece of candy. Then hand out graham crackers to all the students and transition to the next subject.

Formative Assessment: (linked to objectives) Progress monitoring throughout lesson- clarifying questions, check- in strategies, etc.	Summative Assessment (linked back to objectives) End of lesson:
During the group work I will walk around the room, check in on each group, ask questions, etc. As the students are working individually, I will continue to walk around the classroom, check in on students, see if they need help, etc. Go to the students on the computers and check how their mastery is going. Students will record how far they got on their mastery and if they stopped before completing all 4, they will write	The next day students will bring in their homework for the day. Does anyone want to share the problems they created that we can solve on the board? (Allowing expression of affect) The students that created problems, who are willing to share, will bring up their question, I will write it on the board, and collectively we will solve. Do not take answers until every student has finished attempting to solve. I will give my summative assessment when all questions are answered, and students feel confident to move on. Now that we have covered

Lesson Plan Template

down a question they had or what frustrated them. (Create) This will allow me to make sure I answer these questions when we all move forward in the lesson as a class. If students struggle to write down what they are thinking, I will allow an oral explanation. I will assess them on their turned in worksheet from the assignment to see if they accurately used the formulas, could identify length and width, and if their examples are accurate/logical and how far they got on their math manipulatives. **Consideration for Back-up Plan:** Hand out objects to each individual student to measure and apply the area and/or perimeter formula to. Then, once students are done, they can pass their object on to the next student. Group students by level of proficiency and allow for extra time so students don't feel rushed. Have the group work be, students coming up with situations, scenarios, example problems, etc. Where this content can be applied in their everyday lives. These lists can either be turned in, written on the board, or shared aloud.	the perimeter and area of rectangles and squares, does anyone have an idea of how to measure the area and perimeter of a circle or triangle? (Structuring and redirecting learning) I will then link this material and the questions students had when it came to mastering the math manipulatives with our upcoming material. **If applicable- overall unit, chapter, concept, etc.:** For the summative assessment there can be a regular chapter test, a game of jeopardy, an oral assessment, or a power point presentation with a demonstration. These options are to ensure student choice while still assessing students properly on the content.

Reflection (What went well? What did the students learn? How do you know? What changes would you make?):
Spend time before the lesson to see who remembers what, who is above, below, and approaching proficiency to help with grouping. Maybe assign team leaders for each group (whoever is above proficiency that could help lead, guide, explain concepts to students). I could also assign different "jobs" to the students. Have students who will share, make connections throughout the assignment, students who will keep students on track/on time, have a student who will make sure everyone gets heard, etc.

Appendix E

How to Find Area and Perimeter - YouTube
YouTube · Flocabulary

These three technological sources match up with the lesson plan from Appendix D. By allowing students to watch a catchy video that turns pertinent information into a fun song, helps them to commit those formulas to memory. Mathematic manipulatives allow students to tinker, create, and measure objects on their own. Fun websites like coolmathgames.com, engages students in academic computer games while enhancing learning. These are just a few examples of how to incorporate technology in the classroom.

Appendix F

Approaching/Emerging Proficiency: Have these students write a list of at least 5 objects, scenarios, situations, etc. That they can apply the area and perimeter formula for rectangles. They will then create 2 problems on their own using the objects, scenarios, situations, etc. on their list. They will not have to solve on their own, can bring back to class to solve in class. **(Create)**

Formative Assessment: (linked to objectives)	Summative Assessment (linked back to objectives)
Progress monitoring throughout lesson- clarifying questions, check- in strategies, etc. During the group work I will walk around the room, check in on each group, ask questions, etc. As the students are working individually, I will continue to walk around the classroom, check in on students, see if they need help, etc. Go to the students on the computers and check how their mastery is going. Students will record how far they got on their mastery and if they stopped before completing all 4, they will write down a question they had or what frustrated them. **(Create)** This will allow me to make sure I answer these questions when we all move forward in the lesson as a class. If students struggle to write down what they are thinking, I will allow an oral explanation. I will assess them on their turned in worksheet from the assignment to see if they accurately used the formulas, could identify length and width, and if their examples are accurate/logical and how far they got on their math manipulatives.	**End of lesson:** The next day students will bring in their homework for the day. Does anyone want to share the problems they created that we can solve on the board? **(Allowing expression of affect)** The students that created problems, who are willing to share, will bring up their question, I will write it on the board, and collectively we will solve. Do not take answers until every student has finished attempting to solve. I will give my summative assessment when all questions are answered, and students feel confident to move on. Now that we have covered the perimeter and area of rectangles and squares, does anyone have an idea of how to measure the area and perimeter of a circle or triangle? **(Structuring and redirecting learning)** I will then link this material and the questions students had when it came to mastering the math manipulatives with our upcoming material.

| Time	
20 minutes	**Engage:** (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) Once the students are all seated. Ask them, have you ever measured an object? **(Getting interest/attention)** Allow them to answer, ask them to describe how they did that, what tools did they use, etc. **(Diagnosing and checking & Knowledge)** Have them each pick a card from the deck, have them split into groups based on their suit. Once the students have settled into groups explain the game. Each group is a team, give them 30 seconds to pick a name. Write the team names on the board in order to keep track of points. Ask the students to classify the two formulas needed to measure an object? **(Recalling specific facts & Understand)** This is their first assignment: the students have 5 minutes to remember what the perimeter formula is, send one person from the group to the board, write the answer, then sit down. To deter cheating, play quiet music in the background and have all the students write the answers at the same time. If they struggle to remember you can allow them to use their notes. Repeat this with the area formula. Correct the formulas then write the correct ones large on the board. Have the students write them on their own worksheets if needed.
2-5 minutes	**Explain:** (concepts, procedures, vocabulary, etc.) Now explain the next stage. Each group will visit the stations around the room, everyone has to take turns measuring, inspecting, etc. **(Apply)** Students will take turns at the computer station. Explain that the students will have to raise their hands before moving on to the next Geoboard and show that they mastered the concept by getting 3 consecutive problems correct. If the students have finished their tasks, or gone as far as they can, then they can play a game on cool math games. (https://www.coolmathgames.com) Walk around the room and make sure everyone is participating and getting along. If the students have questions be sure to be available to help answer any questions they may have. Make sure to check on all the students before each transition by asking, does anyone want some extra time or help? Did everyone finish at their station? **(Managing)**
30-40 minutes	**Explore:** (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions) Each student will hand in their papers with their answers, you collect them, then have them take their seats, then ask them to take out a sheet of paper and write down five different ways they can use this information and connect it to the real world. **(Encouraging higher-level though processes, Analyze, & Evaluate).** Ask, does anyone want to share their examples to summarize what was learned? Once they have all finished this task have them write their answers on the board, each taking turns using the markers then handing them off to the next person. (While the students are doing this grade their answers, tally their correct answers under the correct teams.)

Questions should often be included in lesson plans, as seen above. These highlighted portions are examples of incorporating questions, with different purposes and different levels from Bloom's Taxonomy. While these questions more pose as an outline/guide, they give the teacher a starting point of what to ask students and provide the flexibility to build off each question.

Appendix G
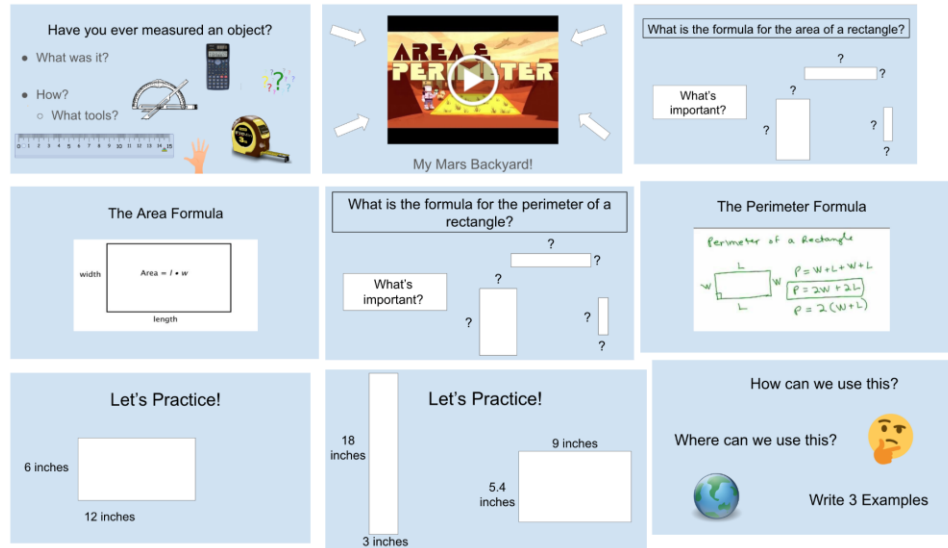
This a basic PowerPoint used to teach fourth grade mathematics. This direct instruction teaches students the area and perimeter formulas of rectangles. The lesson plan that this direct instruction stems from is shown in Appendix D. The presentation starts with a discussion, or prompting questions. Then, the teacher shows the class a video where the information is framed in a catchy song. There are many chances for practicing/applying these formulas throughout the direct instruction. The presentation has limited words, has images, is clean, and to the point. This is a very simple example of direct instruction within the classroom.

Appendix H
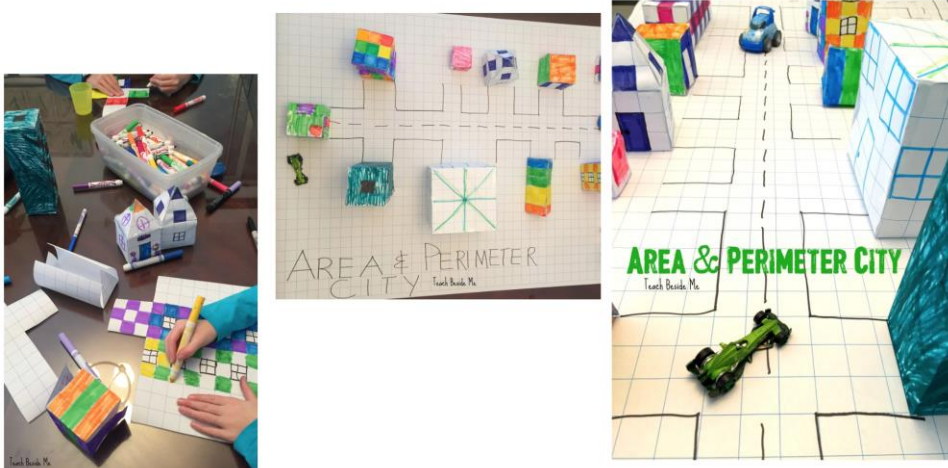
        This indirect instruction idea also relates to the lesson plan seen in Appendix D. The goal

of this indirect instruction was to allow students to use their knowledge of are and perimeter to

create/replicate a specific town, city, or street. Students will work independently and

cooperatively with their group members. Students will be able to apply their understanding of

area and perimeter concepts to a real-world example. They will also improve their presentation

skills and critical thinking skills.

Appendix I

Area and Perimeter of Rectangles

Name: _____   Date: _____

Area of a Rectangle: (Knowledge level)

A= ____ x ____

Perimeter of a Rectangle: Fill in at least one of these! (Knowledge level)

P = ___ + ___ + ___ + ___

P = __ W + __ L

P = __ (W + L)

Turn this slip in when completed and grab the test! Good luck!

KEY:

Area Formula for Rectangles:	Perimeter Formula for Rectangles:
A= W x L	P = W + L + W + L
	P = 2W + 2L
	P = 2(W + L)

Multiple Choice: Select the correct answer for each rectangle and/or formula. (Apply level)

1. A = 7 x 9
   a. A = 56
   b. A = 62
   c. A = 63
   d. A = 57

2. [rectangle figure]
   a. P = 48
   b. P = 108
   c. P = 3
   d. P = 42

3. Area and perimeter formulas of rectangles both depend on the length _____
   and width of the rectangle.
4. Area and perimeter can be used in many jobs, like architecture or gardening. _____
5. There is only one way to solve for the perimeter of a rectangle. _____

Matching: Match each formula in Column 2 to the correct area or perimeter answer in Column 1. (Analyze level)

Column 1	Column 2
1. ___ 21	a. Area: L = 4, W = 9
2. ___ 24	b. Perimeter: W = 10, L = 5
3. ___ 36	c. Area: W = 7, L = 3
4. ___ 60	d. Perimeter: L = 8, W = 4
5. ___ 30	e. Area: W = 12, L = 5

3. If a rectangle's width is 4in and the length is 11in, what is the area of the rectangle?
   a. A = 40
   b. A = 30
   c. A = 44
   d. A = 34
4. A rectangle's length is 5in and the width of 15in. Which formula is incorrect?
   a. P = 15 + 15 + 5 + 5
   b. P = 2(5) + 2(15)
   c. P = 2(5 + 15)
   d. P = 5 x 15
5. [rectangle figure]
   a. A = 30
   b. A = 36
   c. A = 24
   d. A = 60

True and False: Read each statement carefully! (Fill in T or F on the line) (Understand level)
1. Area and perimeter both depend on the volume of an object. _____
2. Area formulas only apply to rectangles. _____

Fill in the Blank: Fill in the formula so that the measurement of the rectangle is true. (Evaluate level)

[rectangle figure, A = 24]

1. 24 = 8 x ___
2. Perimeter = 48   48 = 2(7) + 2 (___)
3. Area = 16   16 = 2 x ___

Extended-Response Essay Question: Compare and contrast perimeter and area formulas. Consider their uses, importance, and variables. (Create level)

Restricted-Response Essay Question: Provide one example of an occupation, besides gardener or architect, where area and perimeter may be useful. (This can also be a situation, but explaining a job and how they use these formulas would be best!)

This is a typical example of a summative assessment, relating to Appendix D. This test covers one lesson. The following assessment contains, five true/false questions, five multiple choice, five matching, five fill in the blank, and two short answer/essay questions. On this particular assessment, I provided a key with the formulas. However, before seeing the key, students were to fill out the formulas and turn that slip in first. I did this so as to test both the students' memory of these formulas and their application skills.