Helping your Grade 9 with ADHD learn Calculating area of a triangle

Section 1: Background Info: ADHD

Attention Deficit Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder that affects children and adults. It is characterized by difficulty paying attention, impulsivity, and hyperactivity. ADHD can have a significant impact on a student's academic performance in Grade 9.

At this age, students are expected to be able to focus on their studies for longer periods of time and to be able to manage their own time and tasks. Students with ADHD may struggle to stay focused on their work, leading to incomplete assignments or poor grades. They may also have difficulty managing their time, leading to missed deadlines or forgotten assignments.

Impulsivity can also be a problem for students with ADHD. They may have difficulty controlling their impulses, leading to outbursts in class or inappropriate behavior. This can lead to disciplinary issues and difficulty forming relationships with peers and teachers.

Hyperactivity can also be a problem for students with ADHD. They may have difficulty sitting still in class, leading to disruptive behavior or difficulty following instructions. This can lead to difficulty understanding the material being taught and difficulty completing assignments.

Overall, ADHD can have a significant impact on a student's academic performance in Grade 9. Students with ADHD may struggle to stay focused on their work, manage their time, control their impulses, and sit still in class. This can lead to incomplete assignments, poor grades, disciplinary issues, and difficulty forming relationships with peers and teachers.

Background Info: Calculating area of a triangle

Calculating the area of a triangle is a fundamental math skill that is used in many different areas of mathematics. It is important to understand the basics of calculating the area of a triangle in order to be able to solve more complex problems.

The area of a triangle is equal to one-half the product of the base and the height. The base is the length of any side of the triangle, and the height is the length of the line that is perpendicular to the base and intersects the opposite vertex.

To calculate the area of a triangle, you must first identify the base and the height. The base is the length of any side of the triangle, and the height is the length of the line that is perpendicular to the base and intersects the opposite vertex. Once you have identified the base and the height, you can calculate the area of the triangle by multiplying the base and the height and then dividing the result by two.

For example, if the base of a triangle is 5 cm and the height is 3 cm, the area of the triangle can be calculated as follows:

Area = (5 cm x 3 cm) / 2

Area = 15 cm2

Example Questions:

1. What is the area of a triangle with a base of 6 cm and a height of 4 cm?

Answer: The area of the triangle is (6 cm x 4 cm) / 2 = 12 cm2.

2. What is the height of a triangle with an area of 15 cm2 and a base of 5 cm?

Answer: The height of the triangle is (15 cm2 x 2) / 5 cm = 6 cm.

Section 2: Barriers that might come up:

1. Difficulty focusing on the task at hand

A Grade 9 student with ADHD trying to learn how to calculate the area of a triangle may have difficulty focusing on the task at hand. As someone who has been diagnosed with ADHD, this student is likely overwhelmed by stimuli in their environment and struggles to concentrate on one item for an extended period of time. When faced with a learning task, such as finding the area of a triangle, this can be incredibly difficult for them because it requires focus and attention; two things that are often lacking when it comes to students with ADHD. Additionally, students with ADHD tend to become easily distracted which further complicates matters as they are

drawn away from the topic at hand and into something else entirely. To make matters worse, these distractions can lead them down dead ends which wastes valuable time that could have been used productively. The struggle goes beyond just staying focused on the topic itself but also understanding what is being taught; without proper concentration they cannot properly process information or retain what was discussed making it more difficult for them to understand concepts like calculating area of a triangle. In conclusion, difficulty focusing on tasks is one specific issue that affects Grade 9 students with ADHD when trying to learn how to calculate area of a triangle due its reliance on attentive engagement throughout its teaching process.

2. Easily distracted by external stimuli

The most common challenge faced by a Grade 9 student with ADHD trying to learn how to calculate the area of a triangle is easily being distracted by external stimuli. This student may have a difficult time focusing on the task at hand due to their attention drifting away from math and towards the noise, movement or other distractions in their environment. Additionally, this student may find it hard to remember what they were learning due to their short-term memory impairments that are typical of ADHD. They might need frequent reminders or breaks throughout class in order for them to stay focused and complete the assignment successfully. The increased amount of activity going on around them can prove particularly challenging when it comes focusing intently on one subject matter, as this takes up valuable cognitive resources which would otherwise be used processing mathematics concepts such as calculating area of triangles among other things. In more severe cases, even if this person tries really hard and puts in extra effort into staying focused on the task at hand but still has difficulty ignoring all exterior input, then incorporating strategies like using noise cancelling headphones or sitting near a window may be useful methods for minimizing distractions so that they can make progress towards mastering this mathematical concept without interruption

3. Trouble understanding and retaining new concepts

A Grade 9 with ADHD trying to learn calculating area of a triangle may have difficulty understanding and retaining new concepts. This is due to the fact that people with ADHD often struggle with working memory and executive functioning skills, which are necessary for understanding abstract concepts. Working memory makes it difficult for them to take in new information, recall previously learned material, organize ideas and thoughts, as well as problem-solve. Executive functioning issues make it hard to understand cause and effect relationships while synthesizing different ideas into one cohesive concept or idea. Furthermore, their inability to focus can also lead them astray from what they are learning since topics may easily become too complex or confusing for them if not broken down properly into smaller chunks of manageable tasks. As a result of these difficulties in comprehending abstract concepts such as calculating the area of a triangle, students who have ADHD often require more time than other students to fully grasp what is being taught and how it applies in real life scenarios.

4. Difficulty staying organized and completing tasks in a timely manner

A Grade 9 student with ADHD trying to learn how to calculate the area of a triangle may have particular issues staying organized and completing tasks in a timely manner. This type of student will often struggle to stay focused, which makes it very difficult for them to organize their thoughts and commit information to memory. Furthermore, they may also have difficulty

finishing what they start due to short attention spans or easy distractibility. Additionally, this student may tend not to think ahead when it comes time management and suffer from procrastination as well as an inability estimate the amount of time needed for certain tasks. All these factors can impede progress by creating barriers that hinder learning such calculating the area of a triangle; in some cases making it nearly impossible without extra help or assistance from another resource like an online tutorial or tutor. Therefore, emphasizing organizational skills and strategies is essential in allowing this individual succeed despite their challenges associated with ADHD

5. Low self-esteem due to past academic struggles

A Grade 9 student with ADHD trying to learn calculating area of a triangle may have issues specifically with low self-esteem due to past academic struggles. The student might be feeling nervous, overwhelmed and frustrated when having to use their mathematical skills as they fear not being able to do the work. This can lead to feelings of not being capable enough or even feeling like a failure which can cause them to become discouraged and unmotivated.

The student is likely struggling with understanding mathematics because of their attention deficit disorder, so it's important for teachers and other educators in their lives to provide encouragement and support so that the student does not feel discouraged about attempting the task at hand. It's critical for this individual's success that they feel comfortable working through challenges as opposed to seeing them as an insurmountable mountain that cannot be conquered by themselves. For example, if necessary resources or accommodations are needed but unavailable it could add further frustration on top of what is already present from existing insecurities related to these types of tasks.

It takes time for students suffering from ADHD related issues associated with academics – such as those mentioned above –to build confidence once again after years spent dealing with struggles stemming from such difficulties; however, providing positive reinforcement throughout their learning journey will go a long way towards helping them achieve better grades while also developing more self-esteem over time. Ultimately, creating an environment where open dialogue about any concerns surrounding mathematics or anything else can occur without judgement is integral in terms of fostering growth both academically and personally within this particular Grade 9 student's life overall.

Section 3: Strategies to help

1. Break down the task into smaller, more manageable steps

Step 1: Explain to the student what area is and how it is calculated.
Step 2: Show them a diagram of a triangle, labeling its sides, angles and vertices.
Step 3: Ask them to identify one side of the triangle with a specific length that they can remember easily (e.g A = 5 cm).
Step 4: Ask them to measure or identify another side of the triangle (e.g B= 6 cm).
Step 5: Calculate the third side (C) by using Pythagorean theorem if necessary.
Step 6: Tell them that they now have all three sides of their triangle which will help determine its area.
Step 7: Introduce Heron's formula for calculating area - A = √s(s-a)(s-b)(s-c), where s = ½ (a + b + c).
Step 8: Once they understand heron's formula, let them calculate using this method while working through some practice questions as examples together on paper or whiteboard/smart board/tablet etc..

2. Provide visual aids to help explain concepts

Visual aids such as diagrams, images, and videos can be extremely helpful when attempting to explain concepts to a student with ADHD. For example, when attempting to explain how to calculate the area of a triangle, you could create a diagram illustrating the three sides of a triangle and the formula for calculating its area. A visual representation of this information may help the student to more easily process and understand the concept. Additionally, you could provide videos that go over the same information and provide a step-by-step guide for solving the problem. This will help the student not only understand the concept, but also apply it to solve the problem.

3. Allow for frequent breaks and movement activities

When helping a Grade 9 student with ADHD calculate the area of a triangle, it is important to offer extra support and guidance in order to ensure success. This could include breaking down the process step by step, providing visual aids or diagrams to accompany each step, and allowing the student to work at their own pace. Additionally, it may be helpful to present the problem in different ways, such as through verbal explanations and by writing it out, in order to determine which method works best for the student. Offering reminders and encouragement as needed is also important to create a positive learning environment and keep them motivated.

4. Use positive reinforcement and rewards for completing tasks

Positive reinforcement and rewards can be a great way to help a Grade 9 student with ADHD stay motivated and on track with their studying. For the student to calculate the area of a triangle, you can give them small rewards at set times, such as a break or treat, for each step they take towards completing the task. This could include breaking the task down into smaller, achievable steps such as understanding the formula, gathering the measurements, and then finally solving and checking the answer. Each step should have a reward attached to it, so that the student is motivated to continue with the task, even if it seems challenging.

5. Offer extra support and guidance when needed

When helping a Grade 9 student with ADHD calculate the area of a triangle, it is important to offer extra support and guidance in order to ensure success. This could include breaking down the process step by step, providing visual aids or diagrams to accompany each step, and allowing the student to work at their own pace. Additionally, it may be helpful to present the problem in different ways, such as through verbal explanations and by writing it out, in order to determine which method works best for the student. Offering reminders and encouragement as needed is also important to create a positive learning environment and keep them motivated.

Section 4: Real Life Examples

One famous person with ADHD is actor and comedian Will Smith. He learned to focus on what he was good at and use it to his advantage. He developed a system for himself that helped him stay organized and kept him focused on his goals. He also focused on exercising and eating healthy to help manage his symptoms. Through this system, he found success and became one of the most successful movie stars of all time.

Calculating the area of a triangle can be used to determine the amount of paint needed to paint a room with slanted walls. For example, if someone wanted to paint their bedroom that has two walls that meet at an angle, they would need to calculate the total area of both triangles in order to figure out how much paint is necessary for the job.

Section 5: Answers to the Sample Questions

1. Area of a triangle with base length 5 cm and height 10 cm:
Step 1: Multiply the base length by the height.
Step 2: Divide the result by 2.
Answer: 25 cm^2

2. Area of a triangle with sides 3 cm, 4 cm, and 5 cm:
Step 1: Calculate the semi-perimeter of the triangle (half of the perimeter).
Step 2: Multiply the semi-perimeter by the three sides.

Step 3: Take the square root of the result.
Answer: 6 cm^2

3. Area of an equilateral triangle with side length 6 m:
Step 1: Calculate the square of the side length.
Step 2: Multiply the result by the square root of 3.
Step 3: Divide the result by 4.
Answer: 15.588 m^2

4. Area of an isosceles triangle with base 8 ft and height 12 ft:
Step 1: Multiply the base length by the height.
Step 2: Divide the result by 2.
Answer: 48 ft^2

5. Area of a right-angled triangle whose legs are both 7 in long:
Step 1: Multiply the two legs together.
Step 2: Divide the result by 2.
Answer: 24.5 in^2

Reference Sheet

Formula:

Area of Triangle = (base * height) / 2

Key Terms:

1. Triangle - A triangle is a three-sided shape with three straight sides that meet at three corners. The three corners are called vertices.

2. Base - The base of a triangle is one of the three sides of the triangle. It is usually the bottom side.

3. Height - The height of a triangle is a line that is perpendicular to the base and goes from the

base to the top corner of the triangle.

4. Area - The area of a triangle is the amount of space inside the triangle. To find the area, you need to know the base and the height.

5. Side - A side of a triangle is one of the three lines that connect two of the three corners of the triangle.

6. Perpendicular - Perpendicular means that two lines are at right angles to each other.

7. Hypotenuse - The hypotenuse is the longest side of a right triangle.

8. Right Triangle - A right triangle is a triangle with one angle that is 90 degrees.

9. Pythagorean Theorem - The Pythagorean Theorem is a formula that is used to find the length of the hypotenuse of a right triangle. The formula is $a^2 + b^2 = c^2$, where a and b are the lengths of the two shorter sides of the triangle, and c is the length of the hypotenuse.

10. Heron's Formula - Heron's Formula is a formula that is used to find the area of a triangle when you know the lengths of all three sides. The formula is $A = \sqrt{s(s-a)(s-b)(s-c)}$, where a, b, and c are the lengths of the three sides of the triangle, and s is half of the perimeter of the triangle.