



Math Activity

It All Adds Up – Maryland - Calculating the Cost of Cigarettes

Objective

To show students the expenses associated with smoking through basic math concepts. (45-60 minutes)

Materials Needed

- Paper
- Calculators
- Overhead projector or chalkboard for demonstration

Step One

Begin by telling the students that the average cost of a pack of cigarettes in MD is \$5.24.

Have students calculate the cost of cigarettes smoking a pack a day:

- For a week
- For a month
- For a year
- For five years

ANSWER:

- For a week = $\$5.24 \times 7 = \36.68
- For a month = $\$36.68 \times 4\text{wks} = \146.72
- For a year = $\$146.72 \times 12 = \$1,760.64$
- For five years = $\$1,760.64 \times 5 = \$8,803.20$

Average cost for a Hyundai Accent, \$9,970

Step Two

Divide the students into groups of two or three. Give the students the scenario that they are working a part-time job to make some extra cash during high school. Have the students pretend that they work 10 hours a week for minimum wage, which is \$7.27 an hour in the state of Maryland.

Have the students calculate how much they would make for a week, month, and a year at that pay rate.



ANSWER:

Week: $10 \text{ hrs} \times \$7.27/\text{hr} = \$72.70/\text{week}$
Month: $4\text{weeks} \times \$72.70 = \$290.80/\text{month}$
Year: $12\text{months} \times \$290.80 = \$3,489.60/\text{year}$

What if they worked 40hrs per week during summer vacation (12 weeks)?

ANSWER:

Week: $40\text{hrs} \times \$7.27 = \290.80
Summer: $12\text{weeks} \times \$290.80 = \$3,489.60/\text{year}$

Step Three

Part A. Ask the students to work in their groups to figure out how much money they would lose if they smoked a pack of cigarettes a day. Have them calculate the cost using the timelines of a week, month, and year. Have them calculate what smoking two packs a day would do to their paycheck. How much money do they have left over?

Have students calculate how much smoking 1 cigarette costs them if smoking 1 cigarette takes approximately 5 minutes and making the assumption of smoking 1 pack per day.

ANSWER: If the average cost of cigarettes is \$5.24 for 20 cigarettes and each cigarette takes 5 minutes, at a pack a day, it costs a MD smoker \$3.15/hour.

$5 \text{ minutes} \times 20 \text{ cigarettes} = 100 \text{ minutes}$
 $100 \text{ minutes}/60\text{minutes per hour} = 1.66$
 $\$5.24/1.66 \text{ minutes} = \3.15

Part B. Ask the students about material items that they perhaps desire to purchase. Have them determine how many packs of cigarettes they would have to buy to equal the price of the item. For example:

- The average cost of a movie ticket for a newly-released movie is \$9
- The average cost of a CD is \$12
- The average cost of a video game is \$40
- The average cost of an iPod Touch is \$229

Invite the students to work with estimations of items they would like to own, such as clothes, TVs, etc. Have the students compare their calculations and consider what they would rather purchase. Did they realize how expensive a smoking habit is? Does it seem like a good idea to use that much of their wages on purchasing



cigarettes? What do they think would be the wisest choice to spend their money?

Step Four

If your class is advanced enough, you may have the students calculate the extra costs of smoking on a yearly basis.

For example:

- The average cost of mints or gum for a year is \$50
- The average cost of whitening teeth once a year is \$600
- The average cost of dry-cleaning a nice outfit or suit once a month for a year is \$144 (due to smell of smoke)



Conclusion: Cigarettes aren't cheap! The expense of cigarettes is often something that is overlooked by people with a smoking habit, possibly because cigarettes are often purchased a single pack at a time. But it all adds up, and this activity is a great way to demonstrate the cost of cigarettes while utilizing important mathematic concepts necessary to a student's educational experience.

Facts to share:

Relative to Step 3 Part A

Some other Maryland diversions,

- Baltimore Raven's game (cheap seats): \$18
- Bleacher seats at an Oriole's game: \$15-23
- Smoking: \$5.24
- Movie w/popcorn & soda: \$11
- Wisp Resort Summer Adventure pass: \$59+tax

More information below:



Other facts:

Lung cancer is the #1 cancer killer in the U.S. and kills more men and women every year than breast, prostate and colon cancers combined.

In the U.S. 562,000 people are estimated to die from cancer in 2009, according to the American Cancer Society Cancer Facts and Figures 2009. 159,390 of those people will have died from lung cancer, accounting for 29% of all cancer deaths.

In Maryland, it is estimated by the American Cancer Society Cancer Facts and Figures 2009, that 4,060 people will be diagnosed with lung cancer and 2,880 are estimated to die from lung cancer.

Please provide any feedback about this activity to: info@beverlyfund.org so that we can make any necessary changes to improve it. Thank you.