

Starting a Business: Advertising a Business

SUBMITTED BY: Nina Hoe, University of Pennsylvania

SUBJECT(S): Computation

GRADE LEVEL(S): 9, 10, 11, 12

≡ OVERVIEW:

In this lesson, students are introduced to basic concepts of advertising as part of an overall marketing strategy. Students learn several key terms, such as click-through rate, conversion rate, ROI and advertising metrics. The lesson focuses mainly on Internet advertising, as these strategies are much easier to measure and track. In the computation section, students are given sample advertising prices along with conversion rates and asked to make calculations based on different statistical scenarios.

≡ NBEA STANDARD(S):

- Computation, I. Mathematical Foundations
- Computation, II. Number Relationships and Operations
- Computation, V. Statistics and Probability
- Computation, VI. Problem-Solving Applications

≡ RELATED ARTICLES:

- [“Reality Check: The Technology Behind “Pokemon Go””](#)
- [“Meet the Brightest Young Entrepreneurs: ‘Be Open-minded and Jump at New Opportunities’”](#)
- [“John Brock of Coca-Cola: Staying Strong in the Competitive Beverage Industry”](#)

Common Core Standard(s):

High School Mathematics: Modeling

Objectives/Purposes:

- Students learn key terms of Internet advertising.
- Students read relevant articles to learn about advertising on the Internet in today's market.
- Students compute ROIs (Returns on Investment) based on different visitor, conversion and click-through rate statistics and scenarios.

Knowledge@Wharton Article:

[“Media Moves: Will the New Online Advertising Models Click”](#)

Other Resources/Materials:

- Computer with Internet
- [Handout](#)

Activity

Pair Discussion (5 mins)

Have students turn to a partner and answer the following questions.

1. What is advertising?
2. As a consumer, where do you see advertisements around you?
3. What types of advertisements are you typically influenced by?
4. If you were to start a business, how would you go about advertising?
5. What are different ways to advertise? (Make a list.)
6. What factors would influence your decision to select a particular type of advertising?
7. How would you know if your advertising strategy was successful?

Whole Class Discussion (10 mins)

Have students report back on their answers for questions 1 – 3. Make a list on the board on different modes of advertising (should include: online/Internet, print/newspaper, radio, TV,

solicitations, etc.)

Play the Wharton Global Youth Program (WGYP) Glossary: [Advertising Metrics](#)

“Statistics that are collected and compared to help evaluate the effectiveness of a particular advertising campaign. The click-through rate is just one example of the explosion of new advertising metrics that have arisen thanks to the Internet.”

8. What types of advertising do you think are most successful or prevalent in today’s market? Why? **(Certainly, Internet advertising is on the rise for many reasons. First, it’s a lot easier to track its success, and second, everyone is using the Internet – way more than TV, radio, newspaper, etc!)**
9. What is a “click-through rate?”

Play the WGYP Glossary: [Click-through Rate](#)

“The click-through rate is the percentage of links clicked on. The display advertisement was shown 100 times, and was clicked on 14 times, for a click-through rate of 14%.”

$$\text{Click Through Rate} = \frac{\text{Number of times advertisement is clicked on}}{\text{Number of times advertisement is shown}}$$

10. What factors do you think influence a click-through rate? **(Might be position/location on webpage, size, font, etc. in addition to type of product.)**
11. It’s obvious that if you are advertising online, knowing your click-through rate is important. What other statistics might be important as well? (Additional probe: If your click through rate is 100%, meaning that 100% of people who see your advertisement online click on the link, but only 1% of those people actually buy your product, is that good? What if your click through rate is 10% but all of those people buy your product?) **(Knowing how many people visit the site. Knowing how many of the people that click on your link actually buy your product.)**

Knowing how many of the people that click on your link actually buy your product is called the **conversion rate**. In Internet marketing, conversion rate is the ratio of visitors who convert casual content views or website visits into desired actions based on subtle or direct requests from marketers, advertisers, and content creators. If the prospect has visited a marketer’s web site,

examples of conversion actions might include making an online purchase or submitting a form to request additional information. (from Wikipedia: [Conversion Rate](#))

$$\text{Conversion Rate} = \frac{\text{Number of purchases}}{\text{Site Visits}}$$

12. What are things that might influence your conversion rate?

Note that advertising is part of a business’s overall **marketing strategy**.

Play the WGYG Glossary: [Marketing Strategy](#)

“A marketing strategy is the overall plan of how to go to market and how to compete. Every firm must develop a marketing strategy for each of their products, determining how to position the products and how they will be distributed and sold.”

Play WGYG: [Return on Investment](#) or ROI

“Return on investment, or ROI for short, is an accounting measure of income, divided by an accounting measure of investment. ~~If the Bluth Company net income was \$2 million, and net assets was \$10 million, the Bluth Company’s ROI would be 20 percent.~~”

$$\text{ROI} = \frac{(\text{Gain from Investment} - \text{Cost of Investment})}{\text{Cost of Investment}}$$

Guided Reading (10 -15 mins)

Have students read the WGYG article: “[John Brock of Coca-Cola: Staying Strong in the Competitive Beverage Industry](#)” focusing on the WGYG question: “How has the company changed its marketing campaigns to appeal to the next generation of soda drinkers? For example, can you explain your Sprite branded Mobile [Social Network](#) for teenagers and other efforts like that?”

1. What new forms of advertising is Coke exploring?
2. Where do you see Coke advertisements the most?
3. What types of Coke advertisements are you most influenced by?
4. Are you familiar with the Sprite Mobile Social Network?

Also, have students read the Knowledge@Wharton article: “Media Moves: Will the New Online Advertising Models Click.” Have them answer the following questions:

5. What are the benefits of Internet advertising?
6. How would you calculate your ROI?
7. According to the article, how does Internet advertising compare to other forms of advertising?
8. What do you think lies in the future for advertising?

Small Group/Pair Activity – Computations (15 mins)

A website owner offers the following advertising options based on locations on his website.



1. Before you think about which spot on this page to advertise, what statistics might you want to know from the website owner? (**The number of site visitors per month**)
2. What statistics do you need to know about your own company/website? (**Your conversion rate**)
3. Your conversion rate is 10% – meaning that 10% of the people that click on your link will end up buying your product. If 2,000 visit the site every month and you advertise in space #3, how many people will end up purchasing your product? (**14 people**)
4. In order to make your desired profit for your company, you need 500 people to purchase your product each month (you still have a conversion rate of 10%). If you want to

- advertise in space #4, how many people do you need to be visiting the website in order to make this happen? **(100,000 people)**
5. Your ROI on advertising is calculated by dividing your income (which is the gain from the advertising investment – the cost of the advertising investment) by the cost of the advertising investment (i.e. the price of the advertising space). Each sale you make, your income is \$20.00. If the website has 5,000 visitors per month and your conversion rate is 7%, what would your ROI be from spaces 1, 2, 3, and 4? **(1- 180%, 2- 110%, 3- 63.3%, 4- 40%)**
6. The website shown here gets 10,000 visitors per month.
- Come up with a fictitious company and determine how much profit you expect to generate off of each sale you make.
 - Make an educated guess about your conversion rate. (Give some reasons why you think this would be the case.)
 - Calculate the ROI on each of the advertising spaces.
 - #1
 - #2
 - #3
 - #4

Tying It All Together:

Whole Class Discussion: (5 mins)

- Based on the click-through rates and costs above, how would you go about selecting which space to advertise in?
- How does the number of site visitors affect your decision?
- How does your own conversion rate affect your decision?

Practice Outside of the Classroom:

Notice how often you click on advertisements when using the Internet. How often do you purchase the product?