OVERVIEW

BIG IDEA
Visually brainstorming a problem can lead to new insight.

OBJECTIVE
3.11 Create a factor-outcome web to visually diagram a health issue

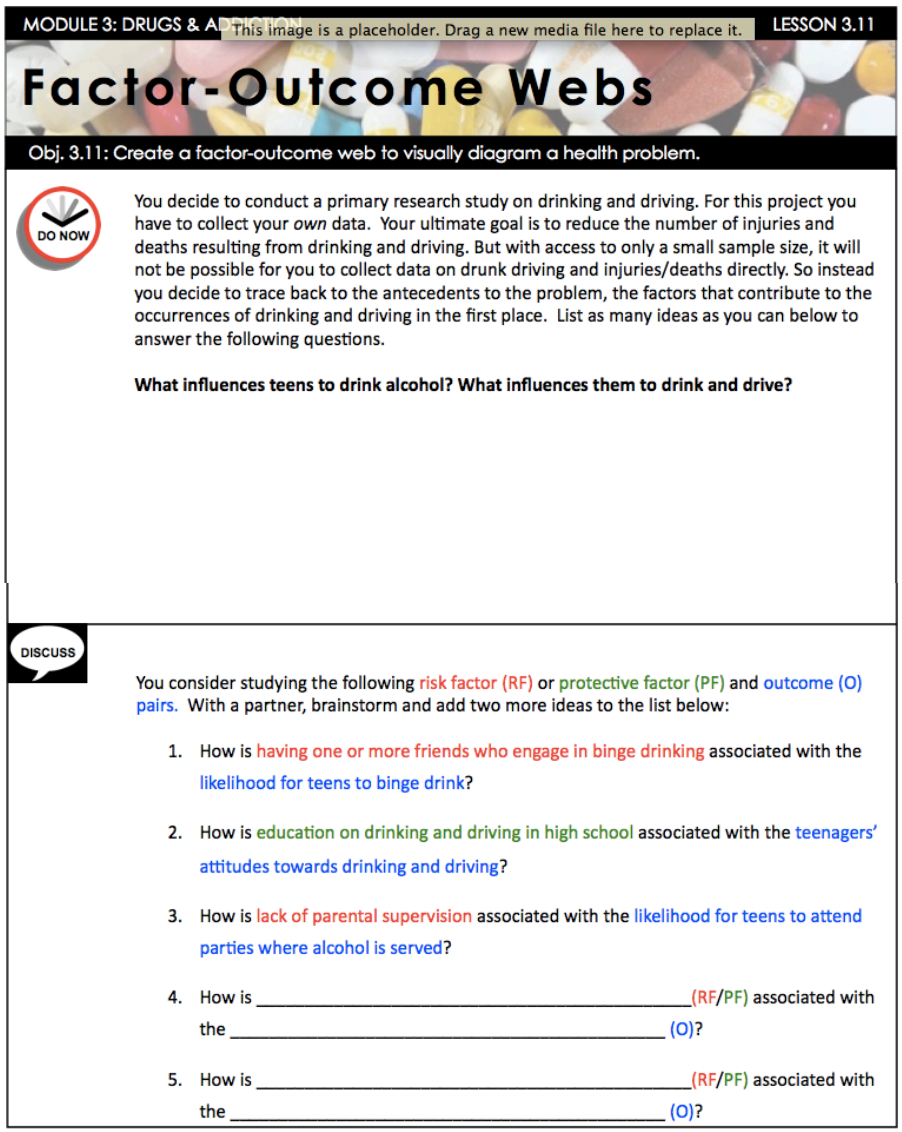
AGENDA
1. Factor brainstorming
2. Model factor-outcome web
3. Practice factor-outcome web

HOMEWORK
What are the benefits and drawbacks to this method?

LESSON 3.11
Factor-Outcome Webs

SUMMARY:

This lesson will provide students with a new method in their toolkit, that of the factor-outcome web. Students will begin by brainstorming factors influencing drinking and driving. They will then practice selecting factor-outcome pairs. After that students will see a factor-outcome web modeled and then try one on their own.



MODULE 3: DRUGS & ADDICTION This image is a placeholder. Drag a new media file here to replace it. LESSON 3.11

Factor-Outcome Webs

Obj. 3.11: Create a factor-outcome web to visually diagram a health problem.

DO NOW

You decide to conduct a primary research study on drinking and driving. For this project you have to collect your *own* data. Your ultimate goal is to reduce the number of injuries and deaths resulting from drinking and driving. But with access to only a small sample size, it will not be possible for you to collect data on drunk driving and injuries/deaths directly. So instead you decide to trace back to the antecedents to the problem, the factors that contribute to the occurrences of drinking and driving in the first place. List as many ideas as you can below to answer the following questions.

What influences teens to drink alcohol? What influences them to drink and drive?

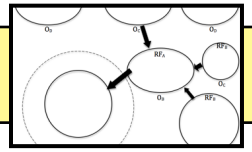
DISCUSS

You consider studying the following risk factor (RF) or protective factor (PF) and outcome (O) pairs. With a partner, brainstorm and add two more ideas to the list below:

1. How is having one or more friends who engage in binge drinking associated with the likelihood for teens to binge drink?
2. How is education on drinking and driving in high school associated with the teenagers' attitudes towards drinking and driving?
3. How is lack of parental supervision associated with the likelihood for teens to attend parties where alcohol is served?
4. How is _____(RF/PF) associated with the _____ (O)?
5. How is _____(RF/PF) associated with the _____ (O)?

DO NOW: When students are investigating problems and gathering their own data, it will often be most interesting, effective, and realistic to focus on accessible variables like knowledge, attitude, access to a resource, behaviors, etc. This Do Now exercise is designed to get them focusing on many of these types of variables.

DISCUSS: The key idea here is that you can study any two variables that are linked (associated) somehow and the labels of risk/ protective factor and outcome are less important. But they do help to get students to understand the directionality of the hypothesized causative factors. A later lesson on causation vs. correlation will explore this issue in greater depth.



NEW INFO

One method for collecting, organizing, connecting, and studying the multitude of risk and protective factors associated with a health problem is to create a type of visual organization tool (similar to a mind map) called a factor-outcome web.

> **Factor-Outcome Web:** A tool used to show the relationship between risk or protective factors and associated outcomes, made by connecting variables with bubbles and arrows, pointed in the direction of hypothesized influence.

It is very important to realize that when we study health factors, one risk factor may be an outcome for other risk factors, so really the two terms are interchangeable at times. For example, if knowledge of the risks of drinking and driving may be a protective factor for the outcome of avoiding the behavior of drinking and driving, but this knowledge may also be an outcome of the protective factor of mandatory drinking and driving education in schools. This can be represented as:

Pf_B --> Pf_A --> O_A

Education --> Knowledge --> Not Drinking & Driving

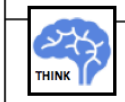
Therefore, it may be easier to think of this type of map as a VARIABLE map, since it is simply connecting different variables that could influence a problem.

In another example:

Rf_B --> Rf_A --> O_A

Cigarettes smoked by family member(s) --> Smoking --> Lung cancer

The risk factor of cigarette smoking in the home may increase an adolescent's likelihood to smoke, and this in turn influences their likelihood to develop lung cancer.



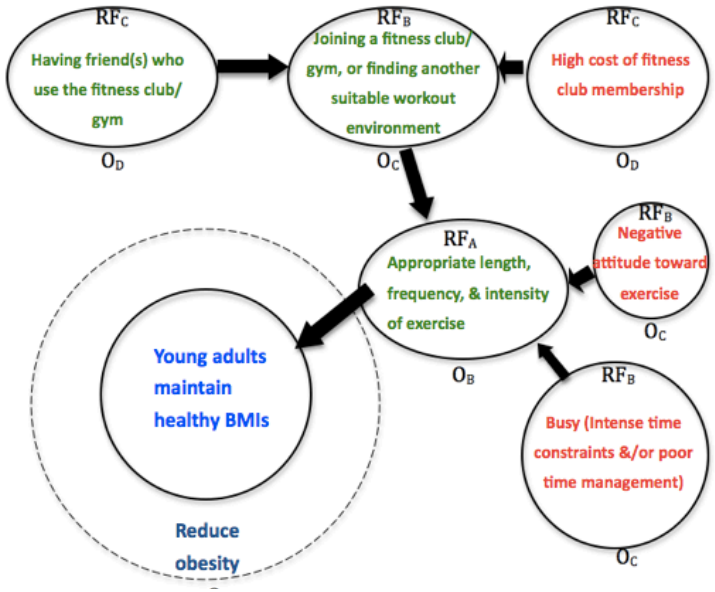
An antecedent can be defined as, "something that came before something else and may have influenced or caused it." How many antecedent factors (risk or protective) can you think of that would influence someone's decision on whether to join a gym?

NEW INFO: The factor-outcome web is a derivative of a variety of other maps. It is not a tool that students will find specific health practitioners or researchers using, most likely. Rather it is a way of visually mapping the thinking. By taking time to deliberately create the visual web, students will be more mindful of their thinking and have an opportunity to slow down the pace of thinking in order to aid in metacognition

THINK: This is another exercise to get students brains humming around these factors. Examples might include: attitude toward exercise, having friends/peers who engage in exercise, physical activity habits of family, PE education in school, access to transportation, proximity to fitness center, cost of gym membership, income/financial situation, time limitations, time management skills, willpower, likelihood to make resolutions, past exercise patterns, diet, BMI/weight, gender, medical status, etc.

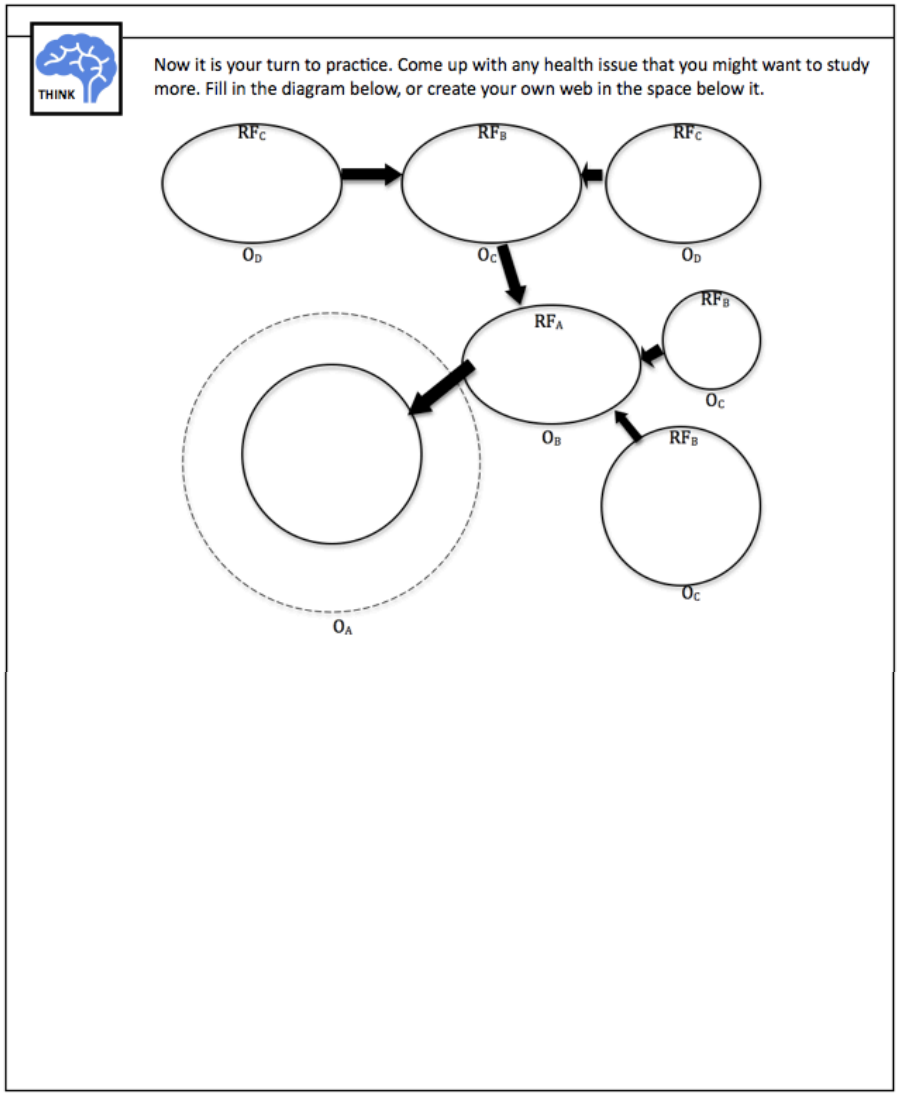
NEW INFO

Visually, there are many ways you can connect your variables (risk factors, protective factors, and outcomes) in a web. In the diagram below, you see labels for different "chains" of connected risk and protective factor, outcome pairs. It is important to note that the construction of a web like this is not to be confused with PROOF that there are any associations or causal links between the variables (although there may indeed be), rather it is a way to organize thinking and should be viewed strictly as a thinking tool.

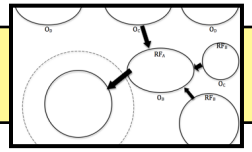


This is just a snapshot of what part of this web might look like. It would be nearly impossible to include ALL the variables that influence a health issue, but you should try to be as comprehensive as possible. Also note that you can have discretion over how you write your variables. You may choose to always keep them neutral (ex: healthy eating behavior), or choose to assign them as a risk factor (negative, ex: eating unhealthy) or protective factor (positive, ex: eating healthy). Ultimately the choice is yours, but you may find it easier to pick one method and stick with it for the sake of consistency. Another helpful method to keep the variables in each bubble simple (the ones above are fairly detailed), is to use an even greater number of bubbles and keep the center bubbles as the main idea (ex: exercise), while adding surrounding bubbles with details (ex: frequency, intensity, length).

NEW INFO: This is just a small segment of what could be a much larger web. Students may benefit by seeing more modeling on the board or projector.



ASSESS: Alternatively, the instructor can provide a pre-selected list of options for students to choose and they can work in teams or individually.



ASSESS

1. What is a Factor-Outcome Web? (Describe in your own words.)

2. In the space below, create a simple Factor-Outcome web that includes the following five bubbles:

(1) Asthma attack
(2) Intense exercise
(3) Access to inhaler
(4) Knowledge of personal triggers
(5) Quality asthma education during physician visits

HOME WORK

Write a paragraph explaining the benefits and drawbacks to creating a Factor-Outcome Web when researching a health issue.

HOMEWORK: The purpose of this homework assignment is for students to practice thinking about methods and tools with a critical eye. There are infinite ways to go about solving a problem, and the tools and methods that are used in class are just one example. However, learning how others might approach a problem and testing those methods can provide great insight and new ideas. Encourage students to be inventors and entrepreneurs. If they have a slight deviation they want to make in the method or a new and better idea, provide them with feedback and give them the opportunity to approach the issues differently.