Gone Fishing

1. History
	1. All of us know what fish are and where to find them…
		1. Gill-bearing, aquatic organisms that lack limbs with digits.
		2. Found in almost all aquatic environments, from high mountain streams to the deep depths of the oceans
	2. But, did you know?
		1. Today there are over 32,000 identified species and possibly thousands more?
		2. Fish have been around since… well, almost forever. Fish were well established millions of years before dinosaurs roamed earth!
		3. Consumption dates back throughout recorded history
	3. Ok, you probably knew all that too. So, let’s move into some things you might not know.
2. Health Benefits
	1. Fish is low in saturated fat (the bad fat) and cholesterol
	2. Fish is a high-quality protein source (protein is required to maintain and repair tissues)
	3. Fish have a number of vitamins and minerals.

-The specific vitamins and minerals vary depending on the type of fish, but include:

* + 1. Vitamins:
			1. Vitamin D- important for maintenance of healthy bones

-Found in:

* + - * 1. Salmon
				2. Mackerel
				3. Sardines
			1. B vitamins (thiamin, niacin, riboflavin, B6, and B12) play an important role in the function of 200+ enzymes our bodies rely on. These enzymes help carry out reactions that produce energy and metabolize the food we eat (just to name a couple).

- B vitamins are found in different amounts depending on the type of fish

* + 1. Minerals:
			1. Phosphorus- mineral required by every cell in the body for normal function

-Found in most foods because it is a critical component for all living organisms

-Fish is an especially good source

* + - 1. Calcium-necessary for strong bones and teeth
				1. Found in fish where the bones are eaten (canned sardines, salmon, and mackerel).
			2. Magnesium- plays an important role in bone structure, energy production, creation of molecules, and is involved in 300+ metabolic reactions.

-Found in:

* + - * 1. Cod
				2. Salmon
				3. Halibut
				4. Mackerel
			1. Additionally, most fish contain some amount of iron, zinc, iodine, and potassium
	1. Fish contain healthy fats (omega-3 fatty acids)
		1. Omega-3 fatty acids are fats that need to be consumed through our diets, because our body needs them, but cannot make them
		2. They are important for heart and brain function. In fact:
			1. Consuming omega-3’s has been shown to help prevent heart disease and heart related problems. Some benefits can include:
				1. Decreased risk of arrhythmias (or abnormal heartbeats)
				2. Decreased triglyceride levels (and cholesterol) (people with adult onset diabetes should ask their doctors if their levels are high.)
				3. Lower blood pressure
				4. Slower growth of plaques that can cause blockages leading to heart attacks
			2. Omega-3’s play a vital role in brain development of children, but can also play a role in slowing mental decline in old age and development of Alzheimer’s disease
			3. Additionally, omega-3’s can help reduce morning stiffness and the number of tender joints in individuals with Rheumatoid arthritis
	2. The American Heart Association suggests eating at least 2 servings of fish per week for heart health (more for lowering triglyceride and helping rheumatoid arthritis).
		1. A serving of fish is 3.5 ounces cooked or about ¾ cup flaked fish
		2. Try to eat primarily oily (fatty) fish for the heart health benefits
			1. Oily fish has higher amounts of omega-3 fatty acids (the healthy fats) because the oil is spread throughout the tissues of the fish

-Includes: salmon, herring, lake trout, sardines, and albacore tuna

* + - 1. Non-oily fish has lower amounts of omega-3 fatty acids because the oil is stored in the liver and not consumed.

-Includes: Tilapia, non- albacore tuna, and common lake fish found in Wisconsin (walleye, perch, sunfish, pike)

Note: both types of fish are good choices, but oily fish have more beneficial POWER (because they have more omega-3’s in the parts consumed, the tissue).

**SHOW** chart of omega-3 content to see differences in amount of omega-3 of varying fish types

* 1. If you don’t like fish or don’t think you can meet recommendations (at least 2 servings of fatty fish per week) there are other options. In addition to finfish, shellfish have omega-3 fatty acids.
		1. Other food sources of omega-3 fatty acids include:
			1. Organ meats

**SPECIAL NOTE:**

Although fish oil supplements are a natural source of fish oil, they are still a supplement and it is not the same as eating the actual fish. If you have any questions or concerns about taking fish oil supplements make sure to contact your doctor before you start takingthem.

* + - 1. Walnuts
			2. Flaxseed
			3. Canola oil
			4. Soybean oil
			5. Fish oil Supplements

Before consuming fish oil supplements it is important to understand both the benefits and risks.

* 1. Fish oil Supplements:
		1. Fish oil is collected directly from fish through a process of cooking/pressing to extract the oil from the fish. So, with fish oil supplements you are getting a natural source of fish oil (it is not a man-made supplement)
		2. Because fish oil supplements are made from natural sources, levels in supplements can vary depending on the source and method of processing.
			1. Usually a 1 gm capsule of fish oil (what is commonly found in most stores) contains 300 mg omega 3

-Capsules can contain more or less depending on the manufacture; check the label for total omega-3 fatty acids or add together the amount of EPA + DHA to get the total for omega-3’s

* + - 1. Liquid fish oil concentrate has approximately 1 to 3 gm omega-3 per teaspoon
		1. The suggested dose of fish oil depends on what benefit you are hoping to get from taking the supplements:

-For heart health (people with no history of heart disease): 1 gm of omega-3 at least twice a week is suggested (~one 1 gm capsules daily)

(people with history of heart disease): 1 gm of omega-3 daily is suggested (~three 1 gm capsules daily)

-To lower triglycerides: 2-4 gm of omega-3 per day is suggested

-For rheumatoid arthritis: >3 gm of omega-3 per day is suggested

Note: The Food and Drug Administration recommends that people take no more than 2 grams of omega-3’s per day from supplements.

**\*\*Make sure you talk to you doctor if you are interested in taking more than 1 gm omega-3 (or three-1gm capsules) per day of fish oil supplements\*\***

* + 1. Fish oil supplements are generally well tolerated, but possible side effects could include:
			1. Fishy aftertaste
			2. Stomach issues (nausea, bloating, belching)
			3. Blood thinning effect- only use under doctors care if you have a bleeding disorder or are taking blood thinning medications (ex: Coumadin or Warfarin)
			4. Blood pressure lowering- If you take blood pressure lowering meds know that fish oil supplements may even further lower your blood pressure
			5. Increased LDL (bad) cholesterol- may be an effect when taken in high doses (>3 gms)- studies are still unclear; but something to be aware of
			6. Exposure to environmental contaminants (because fish oil supplements are created from fish)

-To avoid contaminants try to choose those made from small fish that are low in the food chain (anchovy, sardines, or menhaden)

* + - 1. Allergies- if you have a fish allergy you may also see a reaction to fish oil supplements (because the oil is from a natural source).
		1. There have been no identified interactions between fish oil supplements and other medication (remember though that side effects could be blood thinning and blood pressure lowering—if you are taking other meds for these things it could be a concern).
		2. Most fish oil supplements are safe to take, but be aware that no federal or state agency regularly test these supplements for quality before they are sold.
			1. A company that independently checks products found 17 out of the 24 passed quality testing (for freshness, purity, and containing claimed amounts of omega-3)
		3. Cod liver oil is a supplement made from the oil found in the liver of cod fish; it also contains vitamin A and vitamin D
			1. Cod or other fish liver oils may not be a good substitute for a fish oil supplements because too much vitamin A and D can be taken in.

**REMINDER:**

Although fish oil supplements are a natural source of fish oil, they are still a supplement and it is not the same as eating the actual fish. If you have any questions or concerns about taking fish oil supplements make sure to contact your doctor before you start takingthem.

1. Fun Facts
	1. Fish fries are common in Midwestern and northeastern regions of the US
		1. According to one source the modern fish fry tradition is strongest in Wisconsin!

-More than 1,000 food establishments in Wisconsin hold a weekly fish fry on Fridays

* + 1. A typical fish fry has beer batter fried fish, tartar sauce, french fries or baked potato, coleslaw, and rye bread.
		2. The tradition started because of the Roman Catholic tradition of not eating meat on Fridays during lent, this is now a year round tradition.
	1. Wisconsin’s closeness to the Great Lakes and its large quantity of lakes (thousands of them) makes for a plentiful source of fish.
	2. Like humans fish do not actually produce omega-3 fatty acids, but accumulate them by eating microalgae or prey fish that have accumulated them.
	3. The higher the fish is on the food chain, the higher the accumulation of substances (why some larger fish have higher quantities of omega-3s and also higher risk for toxic substances)
	4. The earliest recorded medical use of cod-liver oil dates back to 1789.
	5. Cod-liver oil was found to be preventative against rickets (softening or weakened bones caused by lack of vitamin D) in young children
	6. The use of cod liver oil in treatment and prevention of rickets was common practice by the 1930’s

(Does anyone remember consuming cod liver oil as a kid?)

* 1. Today the fortification of milk with vitamin D is mainly responsible for the prevention of rickets (the use of cod-liver oil is no longer common practice)
	2. Enteric-coated fish oil capsules (hard coating) are designed to release the fish oil after it reaches the stomach, to minimize the fishy taste and burps. However, if it releases too soon this doesn’t work and there is a chance that it will release too late and not get absorbed.
	3. Omega-3 fatty acids can spoil, so it is best to keep fish oil supplements out of heat and light; tightly reseal container once opened.
	4. Not only does the meat in finfish and shellfish have omega-3 fatty acids, but the oils and eggs of both types of fish do too.
1. Selecting, Storing, and Preparing

**Selecting**

* 1. Only buy fish that is refrigerated or displayed on ice.

-Smell should be fresh and mild—not fishy, sour, or like ammonia

-Eyes should be clear and bulge slightly

-There should be no discoloration, darkening, or drying.

* 1. Know where your fish comes from and that it has been stored properly
	2. Despite the benefits of eating fish, there are some risks to be familiar with
		1. Nearly all fish contain small amounts of chemical contaminants, but some types can contain high levels and should not be consumed
		2. For most people the amount of contaminants consumed by eating two servings of fish per week is not a health concern
		3. Mercury and polychlorinated biphenyls (PCBs) are the main containments to watch
			1. Mercury is spread throughout the fish and cannot be removed, so choose fish species with low mercury levels.
			2. PCB can be reduced by trimming off fat and skin
				1. Remove the guts and all skin
				2. Remove the belly fat, all fat along the back and the fatty dark meat along the entire length of the fillet
		4. Recommendations in choosing fish to minimize contaminate exposure:
			1. Choose smaller fish. Larger ones are more likely to contain more contaminants.
			2. Eat a variety of species.
			3. Know where your fish comes from (fish in lakes and rivers with less contaminants)

**SHOW** Contamination Guide for choosing fish and Statewide Map w/ special advisories

**Storing**

* 1. Fish needs to be placed in the refrigerator or freezer soon after getting it (caught or purchasing)
	2. If it will be used within 2 days store in a refrigerator
	3. If it will be longer than 2 days, wrap it tightly in plastic, foil, or moisture proof paper and store in the freezer
	4. Be careful of freezer burn when freezing fish

-Oily fish can be frozen for around 3 months

-Non-oily fish can be frozen for 4-6 months

**Preparing**

* 1. Fish should be cooked to a minimum internal temp of 145 degrees F.

-Meat should be opaque (no longer clear and shiny) and separate easily with a fork (flake)

* 1. General cooking time is about 10 minutes for every inch of thickness (for frozen, unthawed fish double the time)
	2. To get the most health benefits out of eating fish, cook it in a healthy way
		1. Bake, grill, steam, or boil (don’t fry)
		2. If you fry the fish, blot off extra grease before eating
		3. Season with healthy seasons: spices and herbs (try to limit salt)
	3. Remember to watch sodium content in canned fish (sardines, herring, etc)
	4. Fried fish (aka Friday night fish fry) does NOT count as a good source

-Try to mix it up a little by ordering baked, grilled, boiled, or steamed fish sometimes.

1. Activities
	1. Discuss and handout fish recipes
	2. Sample various fish recipes
	3. Show safe eating guidelines for older adults/ Statewide map of special advisories
	4. Show/discuss chart listing amount of omega-3 fatty acids in different types of fish (which ones are oily vs. non-oily)