

## Biology, week of 3/30 – 4/3

**Chapter 18 Animal-like and Fungal-like protists.** Remember that flagella are made of microtubules and what an organism uses to move around (cilia are basically short flagella). As the name ‘flagellates’ implies, all these organisms have flagella in addition to being unicellular.

Please read Triconympha and Trypanosoma; **then do short written narrations.** Think about how the relationship between flagellate and host differ in a very-important way; then decide which illustrates mutualism versus a parasitic relationship.

Please read Amoebas and Relatives (Sarcondines). An important point is that distinguishing amoebas from flagellates is difficult because at certain stages in the amoeba’s lifecycle, it grows flagella to replace pseudopods (a pseudopod being small cellular protrusions that are used for locomotion/movement and feeding via phagocytosis).

Please read Marine Sarcodines and **do short written-narrations for foraminifera and radiolarians.** These are important organisms in the ocean due to their vast populations. Significant differences between the two are in the composition of their tests (or shells), where they live, and ways they feed. Geologists use foraminifera and radiolarians as ‘index fossils.’ In order to learn about index fossils, go to the internet and do a search using ‘foraminifera evolution.’ One of the results will show: Foraminifera evolution/Fossil Focus/Time/Discovering geology. (this website will be: [www.bgs.ac.uk/discoveringGeology/time/Fossilfocus/foraminiferaEvolution.html](http://www.bgs.ac.uk/discoveringGeology/time/Fossilfocus/foraminiferaEvolution.html)) . **After reviewing this website, write in your notes why foraminifera are such good index fossils.**

When foraminifera and radiolarians die, they form vast deposits on the ocean floor that produce different kinds of rocks. **What are the rocks and which did American Indians use in making weapons/tools (please put this in your notes)?** In order to better understand why, look up radiolarians and conchoidal fracture in Wikipedia (amorphous means very-fine grained and/or noncrystalline). Finally, type in radiolarians and use 'images' to see the complexity, beauty, and diversity of these tiny organisms.

Finally read Ciliates and **record in your notes how ciliates all share unifying characteristics that include being unicellular and possessing cilia.** (Things that you can read, but won't be on a test are passages about Paramecium and Stentor)

[Honors class: readings and narrations for Microbe Hunters. **5, p 42-46.** Spallanzai's experiment conclusively proved that a vegetative force did not exist and life comes from life. As his work was celebrated, how did this change him as a person (e.g., pride, ethics...) and scientist (remember he continued performing experiments and one showed how all life forms do not need air to survive). **6 p 42-52.** The now famous Spallanzai made many enemies at the university that almost ruined his career. Yet his insatiable curiosity about microbes and how they reproduce leads a colleague to propose a radical idea. It is dismissed using an hypothesis Spallanzai believes is flawed, so how does he prove that microbes do not reproduce like other forms of life?]

### **Life Science, week of 3/30 – 4/3**

We will continue reading in Sand County Almanac, the month of March p. 18-22 (stop at 'only be redwings and rails'). Words from the reading to look up and write a definition in your notes include: **gustatory, surreptitious, pinions, filch, and disconsolate.** Over the past two weeks I wanted all of you to practice writing

topic sentences, so now I will help with our new reading. *“As geese migrate hundreds of miles and are keenly aware of conditions in the environment, their March arrival in Wisconsin brings welcome changes to Leopold’s farm and definitively marks the beginning of spring.”* **(Please use this for your topic sentence)** Remember how the function of the topic sentence is to inform the reader what will follow in the paragraph. Things that I left vague purposefully for you to **provide details about in your written paragraph** include ‘welcome changes to Leopold’s farm’ and ‘keenly aware of conditions in the environment.’

**Pictures to draw this week include the house sparrow** (good photographs are on the ‘All About Birds/Cornell Lab’ and ‘Audubon Field Guide’ websites) and a **pasque flower** (search on the internet with ‘pasque flower’ and go to ‘images;’ then select your favorite color as one was not specified in the Sand Co. reading). **Please write a short description for each and include the habitat & diet of the house sparrow. Also, continue with your bird observations at home and recording data I send concerning birds visiting the feeder at school & growth rates for our garden plants.**

### **English History, week of 3/30 – 4/3**

Part of our assignment involves reading Chapter 8 ‘Faroes to Iceland’ in the Brendan Voyage (this is p 136–161 in the hardback book). If you remember, there was a new addition to the crew in the Faro Islands. A picture of Trondur is on p 118, note the hair and beard. Remember that near the end of the previous chapter, Tim indicated how selecting Trondur as a crew member was one of his best decisions as captain.

As your read Chapter 8, take note of how Trondur’s skills & experience benefit the crew. Pictures that he sketched during this leg of the voyage are also included at

various points in the chapter (recall that he was an artist in addition to being a fisherman). Since weather is not a problem during the trip to Iceland, the focus is on wildlife.

**The narration that you will write for this chapter should focus on wildlife.**

Thinking about the topic sentence, I have provided most of the information you will need in the preceding paragraph. Where are they sailing – the Faroe Islands to Iceland. Trondur becomes a valuable member of the crew by catching fish and birds, which are much better than canned and dehydrated foods. His knowledge of whales is also helpful because the crew sees different types.

Since there are such a variety of whales discussed in this chapter (e.g., minke, fin, blue, pilot, Arctic, and killer), I would like you to **select one, draw a picture, and write a short description.**

Iceland is an interesting place, especially, for a geologist because it has active volcanoes. If you have not heard of the Mid-Atlantic Ridge, please do a quick search on the internet. Iceland is one of the rare spots on Earth where the Mid-Atlantic Ridge occurs above sea level. The island of Iceland has no natural resources to use for a fuel source, yet they do not need to import natural gas or coal to generate electricity. So how can they be self-sufficient? Geothermal energy, meaning water heated by shallow magma is used to operate steam turbines that generate electricity.

Iceland is interesting in other respects as well, and you will discover this by touring the island via the internet. The capital, Reykjavik, and surrounding area account for two-thirds of the total population (364,260 people). Do internet searches using: 1) architecture of Iceland (view photographs in 'Wikipedia' and

'images') – please note the 'modernist' element; 2) Reykjavik ('images' is good and shows the Northern lights, while Wikipedia provides a picture of the city in 1881); and 3) Pingvellir National Park (this is the rift valley of the Mid-Atlantic Ridge and area where new crust is being generated. Wikipedia provides a good description and photographs). **Select the thing that you find most interesting from your internet searches of these three topics and sketch a picture; then write a short description.**

### **Spanish Class, week of 3/30 – 4/3**

**Everyone must have the copywork and translation for Lesson 10 done by Friday.**

### **Nature notebooking, week of 3/30 – 4/3**

Please continue with your once-a-week nature walks. Due to all the rain and some sunny days, finally, there are a lot of things in bloom. Pick a flower or tree that you find appealing, possibly even a bird as they are becoming quite active. Please send me a picture or bring in your nature notebook on Friday.

### **American History, week of 3/30 – 4/3**

**Please review the study guide that follows because you will have to answer three questions on Thursday (without using the study guide or notes).** The three questions will focus on: 1) The South Carolina Colony, 2) The Pennsylvania Colony, and 3) Development of the American Colonies during the 1700's.

What we will focus on around your quiz/test are events leading up to the American Revolution. If you remember, the French and Indian War set the American Colonies and England on a path toward conflict. This was due to

England borrowing heavily to finance the war against France, and Spain. English leaders felt that since the American Colonies benefitted as a result of the war, they should have to help repay the debt (in the form of taxes). Also, King George III stationed troops in America to defend territory received from France and Spain in the Treaty of Paris. The housing and maintenance of these troops required additional money, which would have to come from the colonists.

In the aftermath of the French and Indian War, English settlers began crossing the Appalachian Mountains in number to claim the Ohio Valley. Indians feared that the arrival of so many settlers would drive away game that served as a main source of food. Therefore, the Ottawa Indians led by Chief Pontiac captured eight forts in the Ohio Valley during 1763. Early negotiations with the Indians used deceitful tactics, such as supplying Indian leaders with blankets infected by smallpox. The leaders carried this virulent disease back to their tribes and it spread quickly with devastating results. Weakened by smallpox and war, the Indians negotiated for peace during 1765.

During the Indian conflict, English Parliament did two things that angered colonists in America. As a way to try and placate the Indians, Parliament advised colonists not to settle in the Ohio Valley or even cross the Appalachian Mountains. Then in 1764 Parliament passed the Sugar Act, which placed duties (or fees) on imported goods. If colonists tried to smuggle in goods and were caught, they would be tried in Vice-Admiral Courts by British officials.

The Sugar Act didn't produce sufficient revenue to pay English debt, so Parliament passed the Stamp Act in 1765. This required colonists to purchase special stamped paper for every legal document, license, newspaper, and pamphlet published in America. Also, a special fee was placed on playing cards and dice. Every colonist was affected by the Stamp Act and this led to widespread

resistance. A secret resistance group formed, the Sons of Liberty, and one of its founders was Samuel Adams. The Assemblies of each colony also met to pass legislation against the Stamp Act, and Patrick Henry of Virginia introduced a resolution stating that Virginians could only be taxed by the Virginia Assembly. The colonies protested as a collective (or group) and issued a Declaration of Rights & Grievances to England that contained the following line: Parliament lacked the power to impose taxes on colonies because colonists were not represented in Parliament (hence, the rallying cry – no taxation without representation). This was followed by a boycott of British manufactured goods throughout the colonies. The boycott was so successful that the Stamp Act was repealed without ever issuing one stamp.

Please do a **written narration for this new material and make sure important details are in your notes.** Historical figures that you should look up on the internet and read about are the Ottawa chief Pontiac, Samuel Adams, and Patrick Henry. Remember to review and familiarize yourself with the information in the study guide, which follows.

### **American History study guide**

South Carolina revolted against proprietors in 1719 due to not receiving any help during the Yemassee Indian war (1715–1718) and problems with pirates. No aid came from the proprietors because they still viewed the colony as an investment and would not spend money or share in risks. The Indian war started due to SC plans to build towns near Yemassee villages and abuses/enslavement of Indians by white settlers. Once conflict began, it set off a massive Indian uprising with the Creeks playing a major role. Governor Craven declared martial law, constructed fortifications, pressed men into service (including the arming of African slaves), and requested & received military aid from North Carolina and Virginia (with the condition that SC send African slave women to VA after the war). Governor Craven also used diplomacy and money (500 pounds) to convince the Cherokee to

fight Creeks, but the Cherokee failed to meet with SC troops at a specified date/time. Although the SC leaders felt betrayed, the Cherokee had secret meetings with Creek leaders and killed them. The Cherokee then allied with SC and the Indian war soon ended.

Piracy threatened the survival of SC because all goods had to be transported by ship to foreign markets. Notorious pirates were Blackbeard (Edward Teach) and Stede Bonnett (English, rich, educated, former mayor of Barbados who knew nothing about sailing). Under governors Craven and his successor, Robert Johnson, the pirates were caught and hanged.

Remember that the SC government consisted of a governor and Council (both appointed), plus the Commons House elected by the colonists. After SC revolted from the proprietors and was taken over by England, the first appointed governor was Francis Nicholson. His greatest accomplishment as governor was establishing laws in 1725 to successfully regulate Indian trade. The 1707 commission served as a template for the 1725 laws, which include: 1) having a single commissioner (George Chicken) supervise private traders, 2) the commissioner appointed agents to live with the Indians, 3) trade was restricted to certain towns, and 4) all traders were licensed at Charles Town.

The French became a threat to the SC colony after establishing New Orleans (1718), building a fort on the Alabama River, and allying with the Creek to contain English settlements. South Carolina responded by inviting Indian chiefs to Charles Town for a peace conference; then Colonel Glover spent a year living and negotiating with Creek Indians. The result was peace and an agreement that the Creeks would only trade with English settlers. However, the French were having success in turning Cherokee Indians against the SC colony. An unlikely hero arose for SC, the crackpot or genius Sir Alex Cumming (Scottish, alchemist, member of the Royal Society, proposed outlandish ideas, and spent decades in debtor

prison). He visited the SC colony and traveled to the upstate in order to singlehandedly restore Cherokee loyalty to the crown of England. His speech during a terrible storm was so successful that Indian chiefs traveled to England and agreed to only trade with English settlers & return runaway slaves, while the English promised not to build or farm near Cherokee villages.

After political turmoil in the 1720's resulting from the English Board of Trade buying out the proprietors, Governor Robert Johnson returned (1730–1737) and brought peace. His greatest achievement as governor was developing townships (each consisting of more than 20,000 acres) in the backcountry. These provided a line of defense for Charles Town against Indian attack and helped increase the number of white settlers compared with African slaves.

Governor James Glen was appointed by the crown in 1737, but stayed in England until 1743 trying to regain salary (1000 pounds/year) lost due to establishment of the Georgia colony. Its founder James Oglethorpe received the title 'military commander of the southern frontier,' which was formerly held by SC governors. While Glen was in England, Lt. Governor William Bull Jr. served as governor (1737–1743) and prepared SC for a potential invasion by the Spanish during King George's War (related to the War of the Austrian Succession in Europe). After Oglethorpe failed in his attempt to capture St. Augustine and the fort from Spain in 1739, Spain attacked Georgia in 1742. One reason why Spain panicked and left quickly was knowing how Bull had prepared SC for an invasion, and settlers were incensed hearing how the Spanish intended to start a slave revolt.

During the 17<sup>th</sup> century, distinct differences developed quickly between English colonies along the East Coast of North America. Northern colonies (New England) did not have social classes, everyone worked hard to succeed, and religion was central to people's lives. In contrast, southern colonies (VA and SC) had social

classes, the gentry got rich from the labors of African slaves, and religion was viewed as something the rich did (they didn't feel a compulsion to lead Godly lives).

Quaker William Penn founded the Pennsylvania colony in 1682. This was to be a tolerance settlement and open to other Quakers and people that had been persecuted for their religious beliefs in Europe. The Pennsylvania land grant was very large because King Charles II used it as a way to settle a debt with Penn's father. Philadelphia was a planned city along the Delaware River and a city of commerce. However, the PA soil was fertile and abundant land made farming profitable. Amid rural prosperity (due to farming) Philadelphia became the cultural capital of America and the most important city. Part of this was due to Philadelphia's position at a national crossroads: there was a deep-water harbor for ships, trails led west to the frontier, and settlers could follow valleys in the Appalachian mountains (e.g., the Cumberland and Shenandoah) to the backcountry of southern colonies.

By 1750 the English colonies in North America had a population > 1 million and were growing rapidly. The major population centers were Massachusetts & Maine (250,000 people) and Virginia (260,000 people). Colonial governors do not want England to know how well the colonies were doing, because many businesses were technically illegal. English law stated that all colonial government actions had to benefit England and any commercial venture had to be in the best interest of England. Examples of colonial businesses that competed against English ones include: ship building, lumber production, fishing, and whaling. Economic growth in the American colonies was also unprecedented: although they only accounted for 5% of total output of the British Empire in 1700, this rose to 40% in 1775. In fact, Philadelphia was the second largest city, behind London, in the British Empire.