

The Botany of Desire

The Botany of Desire is a book and video by Michael Pollan that poses the idea that plants, in a way, manipulate humans and other organisms to do their bidding. Go to this website, <http://www.pbs.org/thebotanyofdesire/>, follow the steps below, and answer the questions that follow. There is a great deal of information about this topic on the website. You may find it interesting to investigate the site and to work on some of the other interactive activities that you will come across. However, you are only **responsible for answering the bold-faced questions** that are found on this activity sheet.

Desire: Sweetness

BACKGROUND

The apple has long been a popular fruit around the world. A surprising fact about apples is that most taste bitter when picked from a tree grown from apple seeds rather than from grafts. Eighteenth and nineteenth century Americans grew bitter apples in abundance and used them to make one of the most popular beverages of the day: alcoholic or ("hard") cider. The fabled Johnny Appleseed helped to propagate the hard-cider apples by planting many apple seedlings. But, although they occur rarely in nature, sweet-tasting apples have become the ones most favored by humans, sometimes at the expense of varieties that aren't as sweet. Sweetness is a biological desire that's inborn in all human beings, so sweeter apples appeal more broadly than less sweet apples.

The perception of sweetness starts on our tongues. If you look on your tongue, you will see pink bumps called taste papillae. Inside the papillae are taste buds, which are onion-shaped structures that contain taste cells. The taste cells on our tongues help us gauge the saltiness, sourness, sweetness, acidity, and savoriness of foods and drinks. When sweet molecules from foods and beverages bind to receptors on the tongue, they fit together like a lock and key. Once the sweet receptor is stimulated, a series of biochemical steps take place in the taste cell that result in an electrical signal. Nerves convey this signal to the brain where it is interpreted as sweet. Sugars are not the only compounds to stimulate the sweet receptor. For instance, man-made compounds like saccharin also stimulate the sweet receptor. Babies are born liking sweet; this innate preference is thought to have evolved because sugars are a simple and safe source of calories. Sweetness is not an all-or-nothing experience; rather, it is a matter of degree. Apples or drinks can have a range of sweetness.

View [Clip 1](#), [Clip 2](#), and [Clip 3](#) from *The Botany of Desire* and briefly discuss the concepts explored in the clips.

Discussion Questions:

1. What is the purpose of sweetness?

2. How has the successful dissemination of apples throughout the world been related to sweetness?
3. Have our taste preferences as a species influenced our choices of what we eat?
4. Have our choices of what we eat affected what is grown commercially?
5. Explore the history of John Chapman (Johnny Appleseed) by viewing [Clip 4](#) from *The Botany of Desire*. What is the myth and what is the reality of Johnny Appleseed? Why was John Chapman so successful at distributing apple trees?

Desire:Beauty

The following steps (1 - 4) include clips from the film *The Botany of Desire* as well as discussion questions. Be sure to use supporting details in your answers.

1. View [Clip 1](#). Describe at least three of Michael Pollan's observations. What aesthetic tastes do bees and humans have in common?
2. View [Clip 2](#). What is your opinion of tulips compared to other flowers? Are they more or less beautiful?
3. View [Clip 3](#). Are there rational explanations for "beauty?" How obsessed with beauty are Americans? Do other cultures have obsessions with beauty?
4. View [Clip 4](#). What is the practical purpose of flowers? From an economic standpoint, how important is the idea of beauty to people today? Did we learn a lesson from "Tulipmania?"
5. Explore the *Perceiving Beauty* interactive on this website: www.pbs.org/thebotanyofdesire/perceiving-beauty.php. The interactive experience prompts users to detect traits (such as symmetry, color, vibrancy, and health) that appeal to users' perceptions of beauty. As you explore the interactive:
 - Think about your own personal opinion of beauty. Which traits do you think influence how you perceive beauty?
 - Do you find beauty in things that are more complex or more simplistic? Or both?
 - What are the likely evolutionary advantages to possessing traits that are considered beautiful?

Desire:Intoxication

The Botany of Desire film will help establish the scientific and anthropological focus of this exploration of psychoactive plants. View the following clips from the film and answer the following questions:

[Clip 1](#) – Background on mind-altering compounds

1. In the film, scientists assert that human beings have an innate drive to experience other states of consciousness. Do you agree? If so, why do you think that is? How do we most commonly explore altered mental states? What evolutionary benefits do you think there might be to this drive?

[Clip 2](#) – Drugs and culture

2. Which drugs are tolerated in particular cultures? How have drugs been used in various cultures? How was cannabis used in the United States in the 19th century?

[Clip 3](#) – The impact of THC on the brain

3. What is the psychoactive molecule found in marijuana and what does it do to the brain?

[Clip 4](#) – The importance of forgetting

4. Why is forgetting important to the normal functioning of the brain? Part of the value of sleep is that it gives the brain an opportunity to process and organize the day's experiences – retaining some and discarding others. How does this understanding of sleep expand on the notion that forgetting can be good?

Desire: Control

DOMESTICATION MANIPULATION

The last word in ignorance is the man who says of an animal or plant: 'What good is it?' If the land mechanism as a whole is good, then every part is good, whether we understand it or not. — Aldo Leopold

1. Interpret that statement, rewriting it in a way that might make it easier for people to understand. You don't need to explain it —capture its ideas in your own words.
2. View the following movie clips: [Clip 1](#) and [Clip 2](#). For how long and in what ways have we been manipulating plants? Explain why humans manipulate plants and the effects of some of those manipulations.
3. Would human civilization exist without human manipulation of plants and animals?
4. View the following clips: Control: [Clip 3](#), [Clip 4](#), and [Clip 5](#). Discuss the following:
 - Where did apples come from originally? Is it important to preserve this place? If so, why?
 - Is the collection and storage of seeds a good idea? Why or why not?
 - Is transfer of genes from one apple to another apple a good idea? Why or why not?
 - Do we need to preserve all varieties of apples or not?
7. View *Control*: [Clip 6](#) and discuss the following:
 - Why did the number of apple varieties on the market diminish?
 - How does monoculture make crops more susceptible to pests and diseases?
 - How can monoculture lead to wider usage of pesticides?

8. View Control: [Clip 7](#) and discuss the following:

- **How have the potato growers of the Andes Mountains addressed the question of monoculture?**
- **What is the importance of preserving many potato varieties?**
- **Tabulate examples of the dangers that can result from monoculture.**

9. Revisit your statement of the Aldo Leopold quotation. At minimum, you should edit your rephrasing, and add a sentence or two that connects the quotation to the dangers of monoculture. Write more substantively about the potential dangers of monoculture.