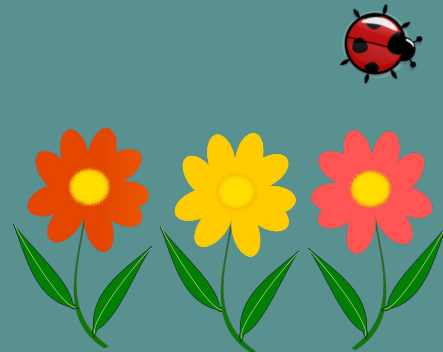


# Minnesota Flowers for Bees & other Pollinators

This Hyperdoc belongs to: Your Name Here

Change activity boxes to green when complete!

1	2	3	4	5	6
7	8	9	10	11	



1

# What are your favorite pollinated foods?

A

Vote for fruits **HERE**

Vote for veggies **HERE**

Vote for crops **HERE**

How would you feel if you could never eat them again?

How can we prevent this from happening?



**FRUITS**

- Almonds
- Apples
- Apricots
- Avocadoes
- Blueberries
- Cherries
- Citrus
- Cranberries
- Grapes
- Kiwifruit
- Loganberries
- Macadamia nuts
- Nectarines
- Olives
- Peaches
- Pears

**VEGETABLES**

- Asparagus
- Broccoli
- Carrots
- Cauliflower
- Celery
- Cucumbers
- Cantaloupe
- Honeydew
- Onions
- Pumpkins
- Squash
- Watermelons

**FIELD CROPS**

- Alfalfa Hay
- Alfalfa Seed
- Cotton Lint
- Cotton Seed
- Legume Seed
- Peanuts
- Rapeseed
- Soybeans
- Sugar Beets
- Sunflowers

Image source: <http://www.kenyonbee.com/tag/pollination/>

**1**

**Why are pollinators dying out?**

**B**

**What can we do about it?**



**Click to watch Video 1**



**Click to watch Video 2**



2

# How does pollination work?

Need the Brainpop login & password? Ask your teacher.



Click to watch the Brainpop video



Click to review & take the quiz

**QUIZ!**  
POLLINATION

The quiz interface features two panels. The left panel shows a house, tree, and bee scene similar to the video player. The right panel shows a close-up of a bee on a pink flower. Below the panels are two orange buttons: 'REVIEW' and 'GRADED'.

Passed the quiz with time to spare? Check out: [Extension video](#) [Pollinator fact sheet](#) [www.pollinator.org](http://www.pollinator.org)

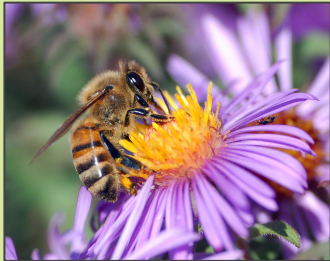
3

# Where do pollinators live?

Create a food web to help visualize the energy transfer in each pollinator's ecosystem.

*Where does it live? What flowers does it pollinate? What predators does it face? Is it endangered? Does it pollinate foods that humans will eventually consume?*

USDA Forest Service  
Pollinator Website



Work in small groups  
to choose a pollinator:

Gale Search  
Database



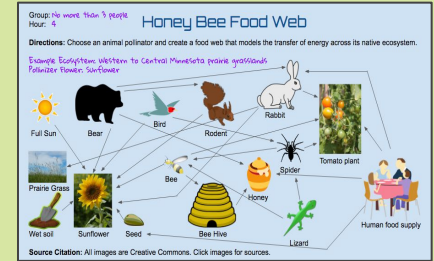
Search pollinator  
species to find  
articles, videos  
and more.

MN's DNR  
Pollinator Page



Links and info on  
Minnesota-specific  
pollinators and  
their habitats

Food Web  
Project Page



This is where each group  
will create their food web.  
Slide 1 is an example.  
Only edit your group slide!



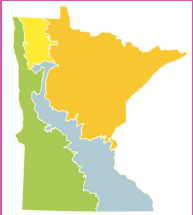
4

A

# Minnesota Flower Maps - Partner Jigsaw

## Which flowers thrive in each MN biome?

Minnesota DNR  
Biome Website



Daisy  
Facts



Impatiens  
Facts



Snapdragon  
Facts



Geranium  
Facts



Orchid  
Facts



USDA Plant  
Hardiness Zones



Lily  
Facts



Marigold  
Facts



Petunia  
Facts



Violet  
Facts



Columbine  
Facts



[Search more here:](#) Coreopsis, Delphinium, Dianthus, Iris, Phlox, Rose, Salvia

4

B

# Minnesota Flower Data Recording Sheet

BIOMES: (Type Y or N)

Aspen?

Coniferous?

Deciduous?

Prairie?

Plant Zones:

List Habitat(s):

Daisy

Impatiens

Snapdragon

Geranium

Orchid

Lily

Marigold

Petunia

Violet

Columbine

Coreopsis

Delphinium

Dianthus

Iris

Phlox

Rose

Salvia

5

# Which Minnesota flowers are good pollinizers? For which pollinators?

A


This is where it gets FUN!

You get to give your own opinion on each kind of flower.

You may work alone or in small groups BUT the “appeal” and “Worth time/\$\$ to plant” columns should be done individually.

You don't have to go in order.  
Finish as many as you can.

Name \_\_\_\_\_  
Hour \_\_\_\_\_

  
**MINNESOTA FLOWER RATING SHEET**  
GOOGLE SEARCH KEYWORDS: Flower name, pollinator, price, season (Watch for "legit" sources)

Flower Name	List Pollinators	Type*	Appeal**	Difficulty**	Worth time/\$\$ to plant? Why?
Azalea					
Begonia					
Chrysanthemum					
Columbine					
Coreopsis					
Daisy					
Dahlia					
Delphinium					
Dianthus					
Geranium					
Gladiolus					
Impatiens					
Iris					
Lily / Daylily					
Marigold					
Orchid					
Peony					
Petunia					
Phlox					
Rose					
Salvia					
Snapdragon					
Violet					

\*Type = annual, perennial, wild, bedded, herbaceous, etc.\*\*Rate 1-5 (1=low, 5=high)



5

# So much vocabulary! What does it mean?

B

Your homework for tonight: practice the vocabulary! Play some games, try the quiz.



## Minnesota Flowers as Pollinators



FLASHCARDS



LEARN



SPELL



TEST



MATCH



GRAVITY

## 6

# Minnesota Pollinator Garden Project

## A

## Today's Tasks:

1. Select group of 2-4 students (3 is ideal)
2. Review rubric as a class, take notes
3. Select a biome & get approval for location
4. Brainstorm potential pollinators & projects
5. Start dividing up tasks



### Minnesota Pollinator Garden Project Rubric



**Group Members:** (2-4 students) \_\_\_\_\_

**Circle Location:** Lakeshore Farm Roadside Downtown School Orchard Home Apiary Park (Other?)

**Circle Biome:** Tallgrass Aspen Parkland Coniferous Forest Deciduous Forest Prairie Grassland

CATEGORY	1	2	3	4	Teacher Notes:
<b>Minnesota Flowers</b>	2 or less chosen, not described	At least 3 chosen & some descriptions	At least 4 chosen & some descriptions	At least 5 chosen & features described	
<b>Pollinators</b>	Lacking pollinator and description	Names a pollinator but no description	Describe how 1 pollinator benefits	Describes how 2+ pollinators benefit	
<b>Garden Design</b>	Incomplete or unlabeled; not suited to location	Complete design but lacking details, labels, descriptions	Some detail / labels; may lack originality or descriptions	Detailed & labeled; unique environment features described	x2! Out of 8 pts
<b>Itemized Cost List</b>	Incomplete or incorrect item list	Most items priced & totaled, few justified	Most items justified, priced and totaled	All materials justified, itemized & totaled	
<b>Installation Procedures</b>	Illogical, incorrect or incomplete list	Some procedures listed, possible gaps	Mostly complete list, logical for location	Logical, complete list for location, timelines given	
<b>Visual Presentation</b>	<2 mins, incomplete or disorganized	2-3 mins, need not identified, no sources	2-3 mins, details need, how met, missing sources	3+ mins, details need & how met, cites sources	x2! Out of 8 pts
<b>Authentic Audience</b>	No audience listed, incomplete script	Audience not specific; script needs editing	Audience not specific; Business etiquette used	Specific, relevant contact business etiquette used	
<b>Vocabulary</b>	<5 vocab words	5-9 vocab words used	10-14 vocab words used	15+ vocab words used	
<b>Group Work</b>	5+ redirects needed	3+ redirects needed	Mostly on task, equal work	On task, equal work	
<b>Group Score:</b>					<b>/ 44</b>

**Self Evaluation:** I put forth solid effort: \_\_\_ / 2 I communicated well: \_\_\_ / 2 I was a team player: \_\_\_ / 2 **Final Grade:** \_\_\_ / 50

6

# Garden Project Timeline

B

Use the rubric to keep your team on task!  
Create a job list for each person as needed.



Today (Tuesday) = Brainstorming Day (choose a project you care about!)

Thursday / Friday = Research Days (be sure to keep track of your sources!)

Next Monday = Garden Design Day (+material/cost list, procedure list)

Next Tues/ Thurs = Presentation + Authentic Audience Script Creation Days

Next Friday = Presentation Day (gSlides, Adobe Spark or Screencast)

**NOTE:** If you stay on task, you should have very little to do outside of school :)



7

# Research Days: CITE ALL SOURCES!

A

Use approved sites on the following slides whenever possible.

Feel free to use the link at right for help in making website, book & article citations.

**Pollinator Garden Project Group Notes**

Group Members: What parts of the project are they working on? (list all)

- 1.
- 2.
- 3.
- 4.

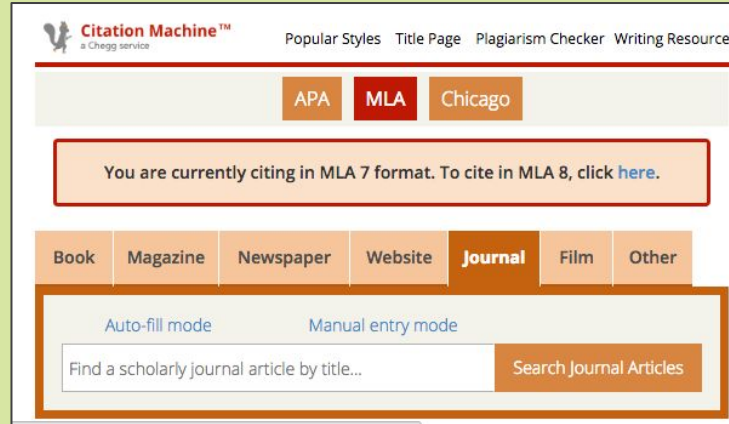
Location:

Biome:

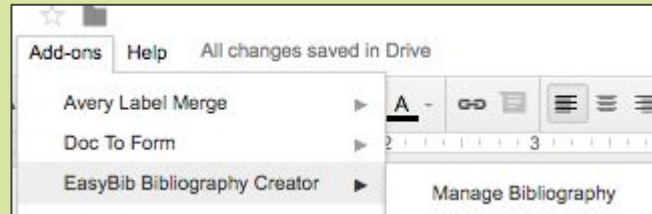
General project description:

Insert garden picture ideas here: (use "wrap text" option to post multiples across)

Flowers we are choosing (for full credit, you need 5+ flowers):  
\*Each flower should have a picture, description, pollinators it helps, planting info



The screenshot shows the Citation Machine website. At the top, it says "Citation Machine™ a Chegg service" with links for "Popular Styles", "Title Page", "Plagiarism Checker", and "Writing Resources". Below this are three buttons for citation styles: "APA", "MLA", and "Chicago". A message box states: "You are currently citing in MLA 7 format. To cite in MLA 8, click [here](#)." Below the message are buttons for "Book", "Magazine", "Newspaper", "Website", "Journal", "Film", and "Other". At the bottom, there are two modes: "Auto-fill mode" and "Manual entry mode". A search bar contains the text "Find a scholarly journal article by title..." and a "Search Journal Articles" button.



The screenshot shows the EasyBib add-on interface in a Google Docs environment. The top bar includes "Add-ons", "Help", and "All changes saved in Drive". Below this is a list of add-ons: "Avery Label Merge", "Doc To Form", and "EasyBib Bibliography Creator". The "EasyBib Bibliography Creator" add-on is selected, and its "Manage Bibliography" option is visible.

Citation Machine is a stand-alone website.

Copy/paste the citation in alpha order where you want it to go.

EasyBib is a gDocs add-on, auto inserts & alphabetizes citations for you.

7

# Research Days: CITE ALL SOURCES!

B

Use approved sites on the following slides whenever possible.

“Googling” is a last resort! Be sure to check for author credentials & publication date.

## Flower Resources:



Flower Pricing

## Pollinator Resources:



## Pollinator Garden Resources:



- Agricultural Landscapes (PDF: 919 KB / 6 pages)
- Yards and Gardens (PDF: 7.86 MB / 6 pages)
- Roadsides and Rights-of-ways (PDF: 3.57 MB / 4 pages)





7

# Research Days: CITE ALL SOURCES!

C

Select 1 or 2 YouTube videos and TED talks to watch that may be helpful. Take notes!!!



The Hidden Beauty of Pollination (7:40)



This Old House builds a pollinator garden (9:36)



Can cities save our pollinators? (4:00)



Top 10 Pollinator plants (7:48)



4 Easy ways you can save bees (2:08)



Roadside flowers for pollinators (4:00)



How farms can protect pollinators (3:45)



Colony Collapse Disorder (4:23)



7

# Research Days: CITE ALL SOURCES!

D

Below are helpful commercial websites for pricing, procedures and authentic audiences. “Googling” is a last resort! Be sure to check for author credentials & publication date.

## Places to get pricing:

[www.amazon.com](http://www.amazon.com)  
(select Patio, Home & Garden)

[www.gardeners.com](http://www.gardeners.com)  
(Garden supply store)

[www.naturehills.com](http://www.naturehills.com)  
(Online plant nursery)

[www.prairienursery.com](http://www.prairienursery.com)  
(Native plants, seeds, grasses)

[www.lowes.com](http://www.lowes.com)  
workers  
(Soil, tools, plant boxes, etc.)

## Gardening/Planting Procedure Ideas:

[Designing a Native Garden](#)

[Designing a Pollinator Garden](#)

[Designing a Roadside Garden](#)

[Prairie Restorations Pollinator Kit](#)

[Pollinator Friendly Cities](#)

[7 Easy Steps to a Pollinator Garden](#)

[USDA School Gardens Checklist](#)

## Authentic Audience Ideas:

School administrators

Business/resort owners

City Council/Developers

Local farms or crop co-ops

Family/friends, neighbors

State and local officials

Nonprofits & public



8

# Flower Garden Design Tips

B

Not sure where to start? Here are some resources that may help.

[Better Homes & Gardens design tips](#)

[Easy Flower Garden Design tips](#)

[Tips for a 3-Season Flower Garden](#)

[Country Living tips with links & tools](#)

[Houzz Modern Pollinator Garden tips](#)

[Bughaven Pollinator Garden tips](#)

## Things to keep in mind:

- Sunlight access? Full / Partial / Shade
- Diversity in colors, height, season
- Upkeep: Annuals or perennials?
- What will bloom, when? Continuous?
- Arrangement, focal point, grasses
- Competition from “Critters” or people?
- Spacing, maintenance access
- Distance from any pesticide use
- Can location / audience pay for it?
- Installation / maintenance staff cost?
- Weather protected? / Water access?

# 9

## Arboretum Field Trip Day!

Don't forget your Smartphone & Notebook!

Be sure to watch for signs of designated pollinator gardens, flowers and displays.

The “Bee Line” shuttle will take you to the Tashjian Bee & Pollinator Discovery Center.

Take lots of pictures, videos and notes on:

- Colors, names, what's in bloom
- Pollinators on specific pollinizers
- Cool facts & figures you can cite



Source Citation: [Click here](#)

# 10

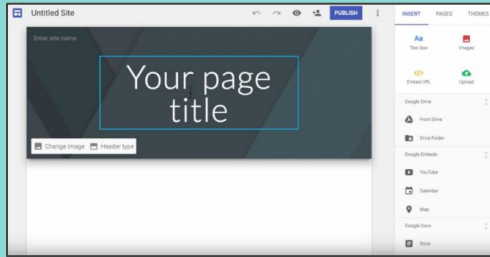
# Pollinator Garden Visual Presentation

## A

Select from [Google Sites](#), [Adobe Spark](#), or [gSlides + Screencastify](#)

You have 2 days to create your presentation & finish up any old work!

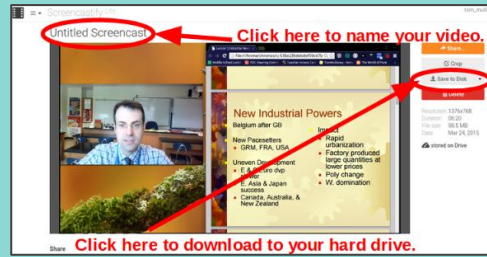
## [Google Sites](#)



### SKILL LEVEL: EASY

- Collaborative website in Drive
- Add pages, links, pics, text
- Built in themes, layout, headings
- Easy to “publish” and share
- No recording features needed
- Sites support: [click here](#)

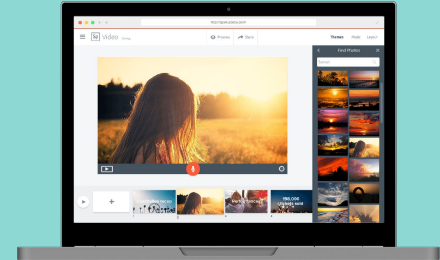
## [gSlides + Screencastify](#)



### SKILL LEVEL: MEDIUM

- Create Slides as usual
- Record up to 10 min presentation
- Embed yourself talking
- Exports to YouTube or Drive
- Use earbuds’ built-in mic!
- Screencastify help: [click here](#)

## [Adobe Spark](#)



### SKILL LEVEL: ADVANCED

- Visual storytelling like iMovie
- Add slides, layouts, music
- Add links, pics, videos
- Record audio on each slide
- Download or embed project
- Spark help: [click here](#)

10

# Authentic Audience Communication

B

This is due on presentation day! It can be homework if desired.

Name of individual:

Title of individual:

Name of business or location:

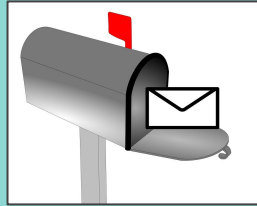
Email or physical address:

Social media account address if applicable:

How do you plan to get a hold of the person?

How will you present this part of your project?

Will you send them links to your garden design and/or presentation?



Examples:

[Writing a formal letter](#)

[Writing a formal email](#)

[Twitter for Business](#)

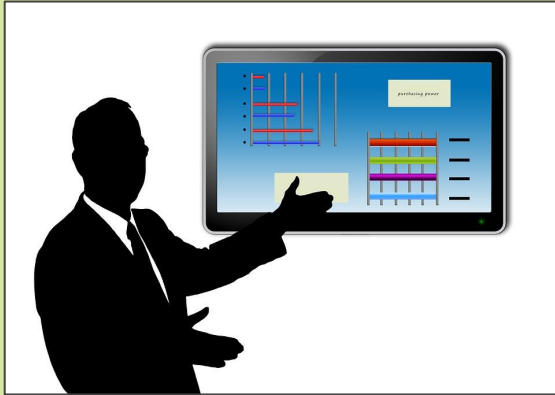




11

# Presentation Day! You made it!

Please be respectful of each group as they present their project.



Don't forget to share your final project with the teacher! Set sharing to "anyone with the link can view".



## Minnesota Pollinator Garden Project Rubric



Group Members: (2-4 students) \_\_\_\_\_

Circle Location: Lakeshore Farm Roadside Downtown School Orchard Home Apiary Park (Other?)

Circle Biome: Tallgrass Aspen Parkland Coniferous Forest Deciduous Forest Prairie Grassland

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Itemized Cost List	Incomplete or incorrect item list	Most items priced & totaled, few justified	Most items justified, priced and totaled	All materials justified, itemized & totaled	
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Group Work	5+ redirects needed	3+ redirects needed	Mostly on task, equal work	On task, equal work	
<b>Group Score:</b>					<b>/ 44</b>

Self Evaluation: I put forth solid effort: \_\_\_/2 I communicated well: \_\_\_/2 I was a team player: \_\_\_/2 Final Grade: \_\_\_/50

Complete the rubric when done! Add notes on the back of what parts you did, etc.