

LESSON 6: EXOTIC INVASIVE PLANTS WIPE OUT THEIR NATIVE NEIGHBORS

Duration: One 45-minute class period

Background information:

(Repeated from Lesson 4)

Why is it that invasive plants crowd out native plants and can take over an ecosystem?

“Exotic Invasive Plants:

- grow and mature rapidly
- have prolific reproductive capacities
- are highly successful in seed dispersal, germination, and colonization
- rampantly spread and out-compete native plants
- are difficult and costly to remove and control
- originate from similar climate as the ecosystems they invade
- quickly colonize open spaces
- have few natural consumers present in the ecosystems they invade”

Source: “A Date With Freddie Kudzu.” *Noxious Neighbors: Exotics in Our Backyard*, Center for Environmental Education, MTSU 1998

The seeds of some exotic invasive species can lie dormant in the ground for many years. For example, garlic mustard seed can remain viable for up to ten years. When conditions are right for growth, the seeds germinate. Suddenly, many exotic invasives appear where there had been none for years.

Objectives:

Examine characteristics of exotic invasive plant species that allow them to out compete and crowd out native plant species.

Prepare in advance:

- Make one copy of the Activity Sheets (Handout 1—word search, cryptogram, and concept web) for each student
- Copy the Answer Key (or make an overhead transparency)

Materials:

- colored pencils
- lab/field notebooks

Description:

Students do a word search and complete a cryptogram using technical terms related to how invasive species out compete native species.

Instructional sequence:

(5 minutes)

Explain the characteristics of invasive plants that allow them to out-compete native species. (This information is contained in the background information above.)

(10 minutes)

Instruct students to complete the word search puzzle successfully prior to completing the concept map/web.

(15 minutes)

Instruct students to neatly color in the line drawings inside each octagon and write in the correct characteristic of exotic invasive species using the list below the concept map/web.

(10 minutes)

Instruct students to solve the cryptogram.

(10 minutes)

Debrief students on the characteristics of exotic invasive plant species as a review. For example: What do you think is the most threatening characteristic of exotic invasive plants? Why?

Instruct students to write in their lab/field notebooks the eight characteristics of invasive plant species that allow them to out-compete native plants.

Optional assessment task:

Direct students to complete the cryptogram without help from their notes.

Handout 1: Activity Sheets

Find and circle these terms that describe exotic invasive plants:

adapt easily

many seeds survive

similar climate

few consumers

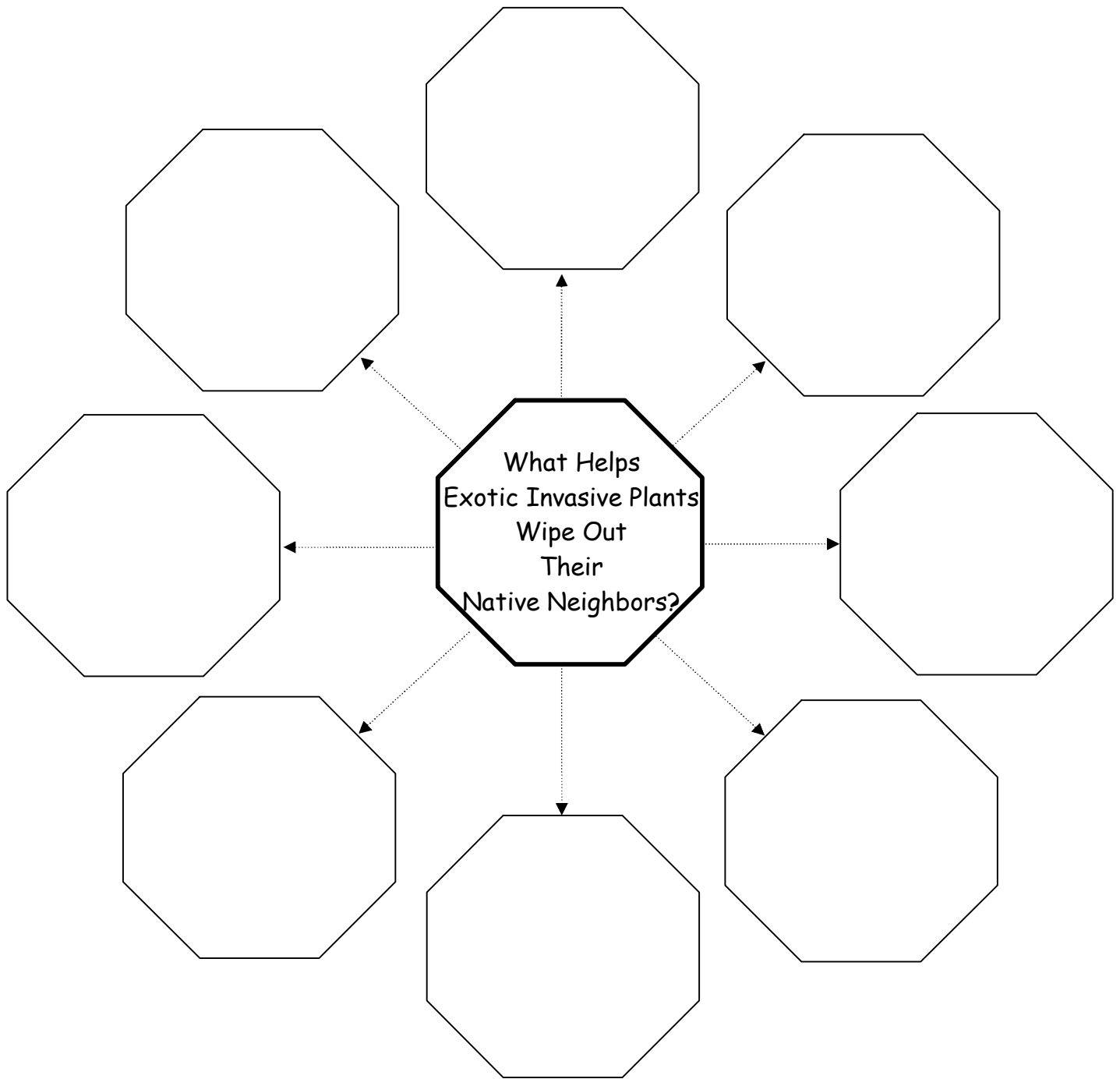
invade open spaces

reproduce rapidly

long lived

toxic chemicals

Q A L K D L P Y T I E T Z T S O X S Y E
T W L X H P F F A P W M T A E G O L L W
E O B I C L B C Q M C U D K C Y D F V S
M V X H F G V L H S O A B J A I C E L Q
C P I I A W V O C X P J K J P C V W A T
L S W V C T T T X T L P S A S W H C B O
Z N C U R C R O E W E T R W N M P O Q Z
C E Z S U U H A O Q K E H G E X W N B J
I N Q I N Z S E H K C M W Q P U J S H M
A K Z C M I K S M U I M F X O A B U A H
O M V Q L H Z G D I Z T N J E V N M V B
R X G Y R Q X O Q E C H L V D L Q E N J
J E Z U Y I R J U Y E A L U A D G R S Q
D B N B N P X T A V Q S L Y V M L S Y V
W O M D E V I L G N O L Y S N C Q T J I
O K N R L M Z T B F R P G N I V F S S E
Q X Y F I O X V M N X C S T A U B F M H
S I M I L A R C L I M A T E W M M X K M
P U L T H P N G T R E W H V O M O B E S
R P A C C D O N C I F W G R G W I K L H



In four (4) or more stop signs (octagons), draw a picture that represents a characteristic of exotic invasive plants that allows them to crowd out native species. The characteristics are listed below. Write the remaining characteristics in the other octagons.

- invade *open spaces*
- *adapt easily to habitats* similar to their original habitat
- new habitat has a “familiar” *climate*
- *many seeds* survive
- *few consumers* depend on them as a food source
- reproduce from a *young age*
- live a *long time*
- roots *release toxic chemicals* into the soil

Solve the cryptogram to describe what helps exotic invasive plants wipe out their native neighbors.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
26							25				8		17		3		4	18	24						14

N A S P A P T A S Y
 7 17 12 26 18 7 12 23 18 9 23 19 7 23 18 26 15 26 3 24 23 26 18 7 8 14
 T H A S T H L
 24 2 25 26 22 7 24 26 24 18 20 7 24 25 26 19 8 7 13 26 24 23
 S L R T R
 26 17 15 18 2 7 8 18 7 13 7 8 26 4 24 2 24 25 23 7 4
 N A L H N S R S
 2 4 7 11 7 17 26 8 25 2 13 23 17 26 24 21 4 26 8 19 2 17 18 21 13 23 4 18
 P R T N A S
 26 4 23 17 2 24 3 4 23 18 23 17 24 18 2 7 17 12 26 18 7 12 23 18
 A P L R
 18 9 4 23 26 15 4 26 3 7 15 8 14 24 25 23 14 3 4 2 15 21 19 23
 T H S N S S R Y
 24 25 2 21 18 26 17 15 18 2 16 18 23 23 15 18 23 12 23 4 14 14 23 26 4
 R A R Y
 16 4 2 13 24 25 23 24 7 13 23 24 25 23 14 26 4 23 12 23 4 14
 Y N T H R L S
 14 2 21 17 11 24 25 23 7 4 4 2 2 24 18 4 23 8 23 26 18 23
 H N
 24 2 9 7 19 19 25 23 13 7 19 26 8 18 7 17 24 2 24 25 23 18 2 7 8
 S A T
 7 17 12 26 18 7 12 23 18 8 7 12 23 26 8 2 17 11 24 7 18 23

Source: Puzzles created by Puzzlemaker at DiscoverySchool.com

ANSWER KEY

Find and circle the following phrases:

adapt easily
similar climate

long-lived
few consumers

many seeds survive
reproduce rapidly

toxic chemicals
invade open spaces

Q A L K D L P Y T I E T Z T S O X S Y E
T W L X H P F F A P W M T A E G O L L W
E O B I C L B C Q M C U D K C Y D F V S
M V X H F G V L H S O A B J A I C E L Q
C P I I A W V O C X P J K J P C V W A T
L S W V C T T T X T L P S A S W H C B O
Z N C U R C R O E W E T R W N M P O Q Z
C E Z S U U H A O Q K E H G E X W N B J
I N Q I N Z S E H K C M W Q P U J S H M
A K Z C M I K S M U I M F X O A B U A H
O M V Q L H Z G D I Z T N J E V N M V B
R X G Y R Q X O Q E C H L V D L Q E N J
J E Z U Y I R J U Y E A L U A D G R S Q
D B N B N P X T A V Q S L Y V M L S Y V
W O M D E V I L G N O L Y S N C Q T J I
O K N R L M Z T B F R P G N I V F S S E
Q X Y F I O X V M N X C S T A U B F M H
S I M I L A R C L I M A T E W M M X K M
P U L T H P N G T R E W H V O M O B E S
R P A C C D O N C I F W G R G W I K L H

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
26							25				8		17		3		4	18	24						14

N A S P A P T A S Y
 7 17 12 26 18 7 12 23 18 3 23 19 7 23 18 26 15 26 3 24 23 26 18 7 8 14
 T H A S T H L
 24 2 25 26 22 7 24 26 24 18 20 7 24 25 26 19 8 7 13 26 24 23
 S L R T R
 26 17 15 18 2 7 8 18 7 13 7 8 26 4 24 2 24 25 23 7 4
 N A L H N S R S
 2 4 7 11 7 17 26 8 25 2 13 23 17 26 24 21 4 26 8 19 2 17 18 21 13 23 4 18
 P R T N A S
 26 4 23 17 2 24 3 4 23 18 23 17 24 18 2 7 17 12 26 18 7 12 23 18
 A P L R
 18 3 4 23 26 15 4 26 3 7 15 8 14 24 25 23 14 3 4 2 15 21 19 23
 T H S N S S R Y
 24 25 2 21 18 26 17 15 18 2 16 18 23 23 15 18 23 12 23 4 14 14 23 26 4
 R A R Y
 16 4 2 13 24 25 23 24 7 13 23 24 25 23 14 26 4 23 12 23 4 14
 Y N T H R L S
 14 2 21 17 11 24 25 23 7 4 4 2 2 24 18 4 23 8 23 26 18 23
 H N
 24 2 9 7 19 19 25 23 13 7 19 26 8 18 7 17 24 2 24 25 23 18 2 7 8
 S A T
 7 17 12 26 18 7 12 23 18 8 7 12 23 26 8 2 17 11 24 7 13 23

**Invasive species adapt easily
 to habitats with a climate
 and soil similar to their
 original home. Natural consumers
 are not present, so invasives
 spread rapidly. They produce
 thousands of seeds every year,
 from the time they are very
 young. Their roots release
 toxic chemicals into the soil.
 Invasives live a long time.**

Puzzles created by Puzzlemaker at DiscoverySchool.com