



New Jersey Center for Teaching and Learning Progressive Science Initiative®

This material is made freely available at www.njctl.org and is intended for the non-commercial use of students and teachers.

These materials may not be used for any commercial purposes without the written permission of the owners. NJCTL maintains its website for the convenience of teachers who wish to make their work available to other teachers, participate in virtual professional learning community, and/or provide access to course materials to parents, students and others.

We, at the New Jersey Education Association (NJEA) are proud founders and supporters of NJCTL, an independent non-profit organization. NJEA embraces NJCTL's mission of empowering teachers to lead school improvement for the benefit of all students.



Click to go to website: www.njctl.org



3rd Grade PSI

Ecosystems: Group Behavior



www.njctl.org

Ecosystems: Group Behavior

[Click on the topic to go to that section](#)

- [How do Animals Live?](#)
- [Advantages of Group Living](#)
- [Disadvantages of Group Living](#)
- [Group Differences](#)

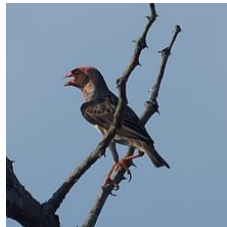
How do Animals Live?

[Return to Table of Contents](#)

Bird Flocks

"Birds of a feather flock together." Robert Half

Question: Why do birds flock together?

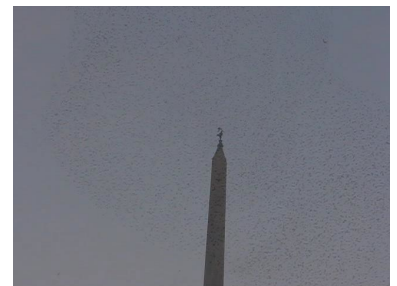


In small groups, discuss why you think birds like the Red Billed Quelea live in flocks.

How do Animals Live?

There are many reasons why birds live in flocks.

Click on the picture to watch a flock of birds and see if you can think of more ideas as you watch how the flock moves together.



Can you think of any other animals that live in groups?

How do Animals Live?

These animals all live in groups.
Do you know what animals these are?
(click on the boxes to check)



Benefits to Groups

Why do you think many types of animals live together?

How does living together help the group?

Come up with some ideas with a partner.



Benefits to Groups

Living in a group means hunting together, raising young together, and dealing with changes in the environment together.



For many organisms, living in a group helps the group survive!

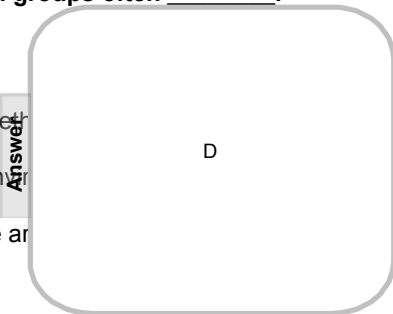
1 Animals that live in groups often _____.

- hunt together
- raise young together
- deal with the environment together
- All of the above are correct

Answer

1 Animals that live in groups often _____.

- hunt together
- raise young together
- deal with the environment together
- All of the above are correct



Answer

2 A group of birds is called a _____.

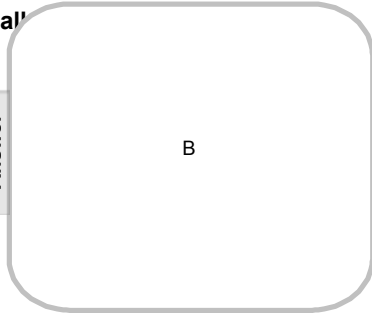
- flutter
- flock
- flurry
- group

Answer

2 A group of birds is called

- flutter
- flock
- flurry
- group

Answer



3 Living in a group can help animals survive.

- True
- False

Answer

3 Living in a group can help animals survive.

- True
- False

Answer



The Solitary Life

The opposite of living in a group is to live a solitary life.

These animals spend most of their time alone.



Can you think of another example besides a polar bear?

How do Animals Live?

Did you guess any of these animals?

These animals live solitary lives.
(click on the boxes to reveal animal names)



How do Animals Live?

Do you think that solitary animals can spend *all* of their time alone?

When do you think solitary animals might need to spend time with other animals?

The Solitary Life

There is one time during their life that solitary animals do not live alone.

Can you think of when that could be?



How do Animals Live?

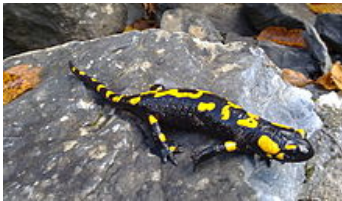
Solitary animals need to spend time with other animals to breed and sometimes to raise their young.



What would happen if solitary animals were always alone?(discuss)

How do Animals Live?

Some animals, especially amphibians and reptiles - like this salamander and leatherback sea turtle - live solitary lives and only see other animals of their species during the mating season.



They usually do not even see or care for their young!

Reptile Exceptions

Interestingly, crocodiles are the most social of the reptiles.

Some species are more tolerant of sharing territory during feeding and basking in the sun.

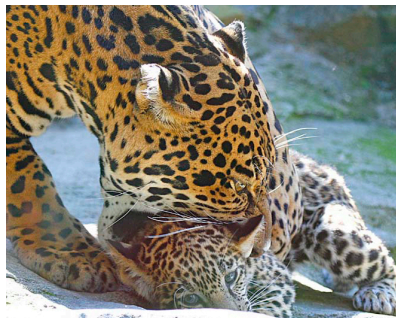


They also show some care for their young, like guarding the nest.

Solitary Mammals

Even animals that are normally solitary, like this jaguar, spend time in family groups while the cubs are young.

This jaguar mother is about to carefully carry the cub to a safer den.



Group Size

In nature, groups vary in size and that affects the group dynamic. Small sized groups include approximately 5-20 individuals.



A Pride of Lions



A Pack of Wolves

Group Size

Medium sized groups include 50 -100 individuals.



Flock of Marsh Birds



Colony of Prairie Dogs

4 All animals live in groups.

- True
- False

Answer

5 Can solitary animals spend *all* of their time alone?

- Yes
- No

Answer

Group Size

Large sized groups include 100's to 1000's of individuals.

Monarch butterflies live alone in the spring and summer months.

In winter, they migrate to Mexico or California and swarm together to stay warm.



Thousands will live in a single tree!

4 All animals live in groups.

- True
- False

Answer

False

5 Can solitary animals spend *all* of their time alone?

- Yes
- No

Answer

No

6 When do all animals need to spend time together?

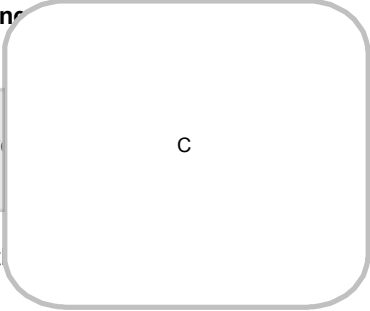
- When they eat.
- When they have young.
- When they breed.
- When they lay in the sun.

Answer

6 When do all animals need to spend time together?

- When they eat.
- When they have young.
- When they breed.
- When they lay in the sun.

Answer



7 What would happen if solitary animals never interacted with other animals?

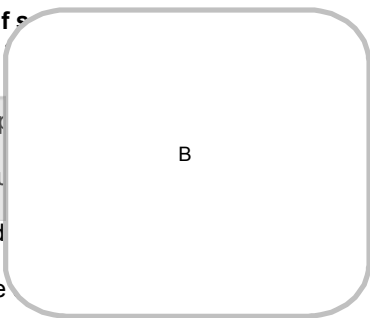
- They would be happier.
- They would eventually become extinct.
- They would spend time with other animals instead.
- They would be the same.

Answer

7 What would happen if solitary animals never interacted with other animals?

- They would be happier.
- They would eventually become extinct.
- They would spend time with other animals instead.
- They would be the same.

Answer



8 Crocodiles are one of the animals most known for living in groups.

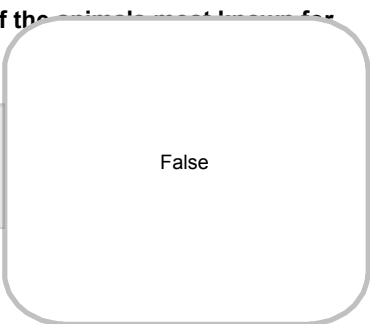
- True
- False

Answer

8 Crocodiles are one of the animals most known for living in groups.

- True
- False

Answer



9 What groups of animals tend to live solitary lives?
(more than one answer)

- reptiles
- fish
- birds
- amphibians

Answer

9 What groups of animals tend to live solitary lives?
(more than one answer)

- reptiles
- fish
- birds
- amphibians

Answer

A & D

LAB: Solitary Versus Group

Get ready to be part of a model of animals in nature!

In this lab, you and your classmates will experience what it is like to be solitary and to work in a group.



Advantages of Group Living

[Return to Table of Contents](#)

Advantages of Group Living

There are many reasons that animals choose to live in groups. Living in a group can have many advantages.

What does advantage mean?
(click on the box to reveal the answer)



Advantages of Group Living

So, what are the benefits of living in a group?

You live in a group right now. Think about how your family helps you!

Make a list with a partner.



Advantages of Group Living

During the lab, did you discover any advantages, or benefits, to working with a group?

What advantages do you think *animals* have living in a group instead of living alone?



Advantages of Group Living

The main advantages of living in a group are:

- It helps animals obtain food.
- It helps animals defend themselves.
- It helps animals cope with changes.

Advantages - Food

One advantage of living in a group is that food is shared within the group.

Here is a pride of lions eating a giraffe that they worked together to hunt.



Advantages - Food

By working in groups to get food, animals can get more food than they would be capable of getting on their own.

These red harvester ants obtained a very large piece of food to bring back to their nest.



Advantages - Food

Many animals in groups communicate to achieve tasks such as finding food.

Scout honey bees travel to find food. When a scout finds food, they waggle dance. The waggle dance tells other scouts where to go to find more food.



[Click here to watch a video on the waggle dance!](#)

Advantages - Defense

In a group, defense against predators is a combined effort.

The coloration of a herd of zebras makes it more difficult for a predator to make a successful catch.



Advantages - Defense

Chimpanzees sometimes attack as a group and eat small monkeys, like these Colobus Monkeys. The Colobus monkeys will work as a group to fight off the chimps.

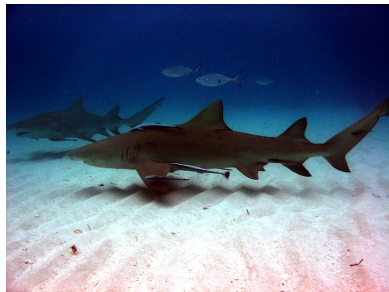


Together they will mob the chimp, biting and scratching to chase him away.

Advantages - Coping with Changes

A group of animals can deal with changes better than an individual animal.

Groups of lemon sharks patrol their environment and communicate to members of the group about any changes in the environment.



Advantages of Group Living

Some other advantages of group living are:

social interaction

having help to raise young

animals can move more efficiently
(especially when swimming or flying)

high availability of mates

Advantages - Defense

Defending against predators becomes a responsibility shared by the group. Part of the group can warn the rest of the group when there is danger.

Meerkats lookout for predators and will warn the rest of the group if they see anything. Click picture for a video.



What did you see other group members doing while the meerkats fought off the predator?

Advantages - Coping with Changes

Within a group of animals, there are similar genes and characteristics. When changes occur in the environment, traits that will help the species survive are passed down.

Lionesses are usually related and control the dynamics within a pride. If this is a strong group, future generations will have those traits as well.



Advantages of Group Living

Discuss with your group any examples you know of these advantages in animal groups

or

how you think these things would be benefits to a group.

10 What does it mean to have an advantage?

- to have something that makes life easier
- to be more likely to succeed
- to be more likely to become worse
- to have everything you could need

Answer

10 What does it mean to

- to have something
- to be more likely to
- to be more likely to
- to have everything

Answer

B

11 Which of the following is not one of the main advantages of group living?

- Help obtaining food.
- Help coping with changes.
- Help building shelter.
- Help defending against predators.

Answer

11 Which of the following advantages of group

- Help obtaining for
- Help coping with c
- Help building shel
- Help defending agains

Answer

C

12 The waggle dance used by honey bees is an example of which advantage of group living?

- Group living helps animals cope with changes.
- Group living helps animals defend themselves.
- Group living helps animals obtain food.
- None of the above.

Answer

12 The waggle dance used by honey bees is an example of which advantage of

- Group living helps
- Group living helps
- Group living helps
- None of the above

Answer

C

13 These meerkats are an example of which advantage of group living?

- Group living helps animals cope with changes.
- Group living helps animals defend themselves.
- Group living helps animals obtain food.
- None of the above.



Answer

13 These meerkats are an example of which advantage of group living?

- Group living helps animals cope with changes.
- Group living helps animals defend themselves.
- Group living helps animals obtain food.
- None of the above.



Answer

B

14 Do you think that living in a group always gives animals an advantage?

- Yes
- No

Answer

14 Do you think that living in a group always gives animals an advantage?

- Yes
- No

Answer

No

LAB: Who has the Advantage?

In this lab, you will create a model using yourself again!

This time, get ready to experience either solitary or group living. Whatever you are, have your eyes open for when it is a good thing, and also when it is a bad thing.



Disadvantages of Group Living

[Return to Table of Contents](#)

Disadvantages of Group Living

We learned that animals choose to live in groups because living in a group can have many *advantages*. But sometimes living in a group can have *disadvantages*.

What do you think *disadvantage* means?
(click on the box to reveal the answer)



Disadvantages of Group Living

competition for resources (food, water, shelter, space)

higher risk of infection / sickness

increased likelihood of being seen by predators

competition for mates

Did you guess any of these?

Disadvantage - Resource Competition

These birds have to share water. This large group will suffer unless rains come to this area.



Disadvantages of Group Living

During the "Who has the Advantage?" lab, did you discover any disadvantages of working with a group?

What disadvantages do you think *animals* have living in a group instead of living alone?



Disadvantages - Resource Competition

When animals live together, they must share all the available resources. This doesn't always work out well.

Click the picture to watch a video about a lion pride that splits up because of problems sharing their food.



Disadvantages - Risk of Sickness

Animals that live in groups are often very similar to one another. This can be a disadvantage when sickness or disease enters the group.

Because animals are so close together, sickness can spread easily and quickly.



Disadvantages - Predation

In the last lab, did you notice that it was more difficult to hide when you were in a group? Animals are easier to see when they are in groups.

Some predators attack animal groups because they are easier to find and more likely to have at least one animal that is easy to catch.



Disadvantages - Competition for Mates

Animals need to reproduce, but sometimes when they live in a group, there is a large amount of competition for mates.

Here, female antelopes compete for mates within their group.



15 Group living does not have disadvantages.

- True
- False

Answer

Disadvantages - Predation

Large groups of organisms or swarms can be seen by predators from far away and easily preyed upon.

Bat-eating spiders wait for swarms of bats to travel by. As bats swarm, the spiders catch the bats in their webs.



[Click here to watch a video on these spiders!](#)

Disadvantages of Group Living

Can you think of any other possible disadvantages of living in a group?

Discuss with your group any examples you know of other disadvantages in animal groups.

Think about why some animals choose to be solitary.

15 Group living does not have disadvantages.

- True
- False

Answer

False

16 Increased likelihood of sickness makes an animal:

- stronger
- more likely to survive
- weaker
- less likely to survive

Answer

16 Increased likelihood of sickness makes an animal:

- stronger
- more likely to survive
- weaker
- less likely to survive

Answer

D

17 Which of the following is not a disadvantage of group living?

- competition for the help of others
- competition for mates
- competition for resources
- increased risk of disease

Answer

17 Which of the following is not a disadvantage of group living?

- competition for the help of others
- competition for mates
- competition for resources
- increased risk of disease

Answer

A

18 Providing food for yourself is easier than providing food for a group.

- True
- False

Answer

18 Providing food for yourself is easier than providing food for a group.

- True
- False

Answer

True

19 Which statement is an example of a disadvantage of living in a group?

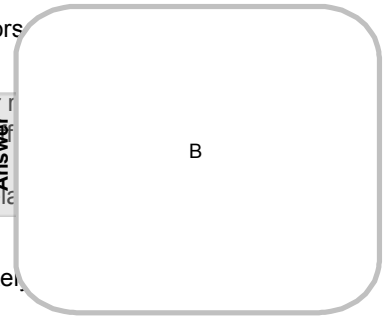
- Groups see predators and alert the whole colony.
- Groups compete for resources and in tough times, this could make it difficult for the group's success.
- Groups are often related and take care of all the young.
- D Groups are less likely to have to share food.

Answer

19 Which statement is an example of a disadvantage of living in a group?

- Groups see predators
- Groups compete for r
this could make it d
- Groups are often rela
young.
- D Groups are less like

Answer



20 It is _____ to be seen in a large group by a predator.

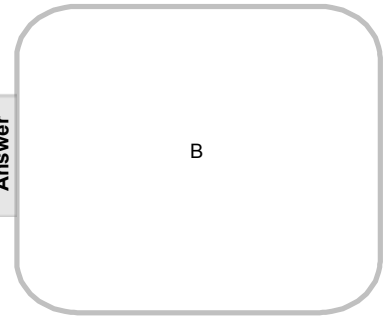
- A an advantage
- B a disadvantage

Answer

20 It is _____ to be seen in a large group by a predator.

- A an advantage
- B a disadvantage

Answer



Group Differences

[Return to Table of Contents](#)

Group Differences

Remember the video we watched in the last section about the lion pride that split up? Three male lions got kicked out of a very large pride and were then forced to be part of a smaller group.

Do you remember how their behavior had to change because of their smaller group size?



Group Differences

Different animals groups serve different functions.

What different functions can you think of that an animal group might serve?

Group Differences

Some groups exist mainly in order to survive.

Meerkat groups are an example of this. Meerkats form groups in order to survive, because they are very susceptible to predators.



Group Differences

Other animal groups exist mainly because of social reasons.

Termite colonies are complex social groupings. Colony members each have specific jobs and roles that they play.



Group Differences

All animal groups are different.

Although they may have similar reasons for forming or functions that they serve, every group - *pride, colony, flock, herd, pack, or other* - is unique.

21 All animal groups form for the same reasons.

- True
- False

Answer

21 All animal groups form for the same reasons.

- True
- False

Answer

False

22 Which of the following is true of animal groups?

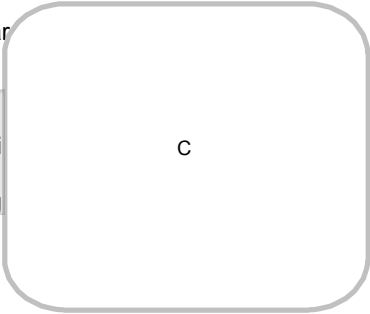
- They are all similar in size.
- They all serve the same functions.
- They vary dramatically in size.
- They never change.

Answer

22 Which of the following is true of animal groups?

- They are all similar
- They all serve the
- They vary dramati
- They never chang

Answer



23 Will animals of the same species always form similar size groups?

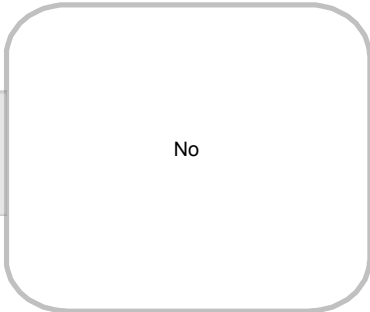
- Yes
- No

Answer

23 Will animals of the same species always form similar size groups?

- Yes
- No

Answer



24 The main function of meerkat groups is:

- friendship
- survival
- social
- convenience

Answer

24 The main function of meerkat groups is:

- friendship
- survival
- social
- convenience

Answer

