AN
IMAX® ORIGINAL FILM
PANDAS

PANDAS AND THE NEXT GENERATION SCIENCE STANDARDS (NGSS)

Thoughtful viewing of the film, *Pandas*, along with classroom discussion, investigation and reflection by students supports the classroom treatment of the following Life Science and Earth Science Standards for third through eighth grade:

GRADE 3-LS4-2

Use evidence to construct an explanation for how the variation in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.

www.nextgenscience.org/dci-arrangement/3-ls4-biological-evolution-unity-and-diversity

A bone in the panda's wrist evolved into a thumb-like structure which makes eating bamboo more efficient.

GRADE 3-LS4-3

Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

www.nextgenscience.org/dci-arrangement/3-ls4-biological-evolution-unity-and-diversity

Pandas cannot survive without bamboo, so they move up and down the mountain to stay close to bamboo that is in season.

GRADE 4-LS1-1

Construct an argument that plants and animals have internal and external structures that function to support survival, growth, and reproduction.

www.nextgenscience.org/dci-arrangement/4-ls1-molecules-organisms-structures-and-processes

Develop an explanation for how the panda's wrist bone, which evolved into a thumb-like structure, makes eating bamboo more efficient.

GRADE 5-ESS3-1

Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

www.nextgenscience.org/dci-arrangement/5-ess3-earth-and-human-activity

The Chinese government is using science and technology to protect pandas, and is learning from Dr. Ben Kilham, an American black bear researcher.

MIDDLE SCHOOL–LS1-5

Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

www.nextgenscience.org/dci-arrangement/ms-ls1-molecules-organisms-structures-and-processes

Panda habitat has plentiful bamboo and few predators.

MIDDLE SCHOOL-LS2-2

Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

www.nextgenscience.org/dci-arrangement/ms-ls2-ecosystems-interactions-energy-and-dynamics

The amount of bamboo to keep a panda alive is one factor that limits panda population. Reduced and disconnected habitats make it difficult for the population to thrive.

MIDDLE SCHOOL-LS2-4

Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

www.nextgenscience.org/dci-arrangement/ms-ls2-ecosystems-interactions-energy-and-dynamics

Human construction has reduced panda habitat and separates panda groups from each other.

MIDDLE SCHOOL-ESS3-3

Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

www.nextgenscience.org/dci-arrangement/ms-ess3-earth-and-human-activity

Examine what the Chinese scientists are doing for pandas.

MIDDLE SCHOOL-ESS3-4

Construct and argument supported by evidence for how increases in human population and per capita consumption of natural resources impact Earth's systems.

www.nextgenscience.org/dci-arrangement/ms-ess3-earth-and-human-activity

The effect on pandas has gotten worse over time as the population of China has grown and become more prosperous.