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

ператор 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

.parents 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

ператор 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

perator 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.

Examine what the Chinese scientists are doing for pandas.

MIDDLE SCHOOL–ESS3-4
Construct an argument supported by evidence for how increases in human population and per capita consumption of natural resources impact Earth’s systems.

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