### Teacher’s Guide Unit 1—What Is the Nature of Science? In-depth Investigation Assessment Rubric

<table>
<thead>
<tr>
<th>Team Process</th>
<th>Excellent</th>
<th>Satisfactory</th>
<th>Needs Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work well together to arrange available evidence (puzzle pieces) • Listen to all team members’ ideas before deciding on hypotheses • Collaborate well with other teams, listening to others’ hypotheses and reasons before revising their own</td>
<td>Work together to arrange puzzle pieces, but have problems discussing the hypotheses reflected by the evidence • Listen to other teams’ hypotheses, but not sure how to use information to refine own hypotheses</td>
<td>Don’t work together to arrange puzzle pieces • Don’t listen to each other’s suggested hypotheses and cannot agree on hypotheses • Don’t look at other teams’ evidence or listen to other teams’ hypotheses and reasons</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Team Product</th>
<th>Excellent</th>
<th>Satisfactory</th>
<th>Needs Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Build their puzzle from all available pieces of evidence • Create several hypotheses and refine final hypothesis based on their evidence and collaboration with other teams • Give reasons for their hypothesis.</td>
<td>Build their puzzle from all available pieces • Create hypotheses, but can’t explain how their final hypothesis reflects their evidence and evidence of other teams</td>
<td>Don’t use all pieces of evidence in their puzzle • Don’t create hypotheses that reflect their evidence • Can’t give reasons for their hypotheses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Discussion</th>
<th>Excellent</th>
<th>Satisfactory</th>
<th>Needs Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Answer all guiding questions • Thoroughly understand how the simulation demonstrates the nature of science and what the limitations of the simulation are</td>
<td>Able to answer some of the guiding questions • Partially understand how the simulation demonstrates the nature of science and what the limitations of the simulation are</td>
<td>Don’t answer guiding questions • Don’t understand how the simulation demonstrates the nature of science and what the limitations of the simulation are</td>
</tr>
</tbody>
</table>

### Teacher’s Guide Unit 2—Who Was Charles Darwin? In-depth Investigation Assessment Rubric

<table>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work well together to design and conduct their experiment • Listen to all team members’ ideas • Work well to analyze their data and create a presentation of their results</td>
<td>Work together to design and conduct their experiment • Listen to each other fairly well • Have some problems analyzing their data and creating a presentation of results</td>
<td>Don’t work together to design and conduct their experiment • Don’t listen to each other’s suggestions and cannot agree on a design • Don’t understand how to analyze their data and don’t work well together to create a presentation of results</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Team Product</th>
<th>Excellent</th>
<th>Satisfactory</th>
<th>Needs Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Team Product Data is well organized • Their conclusions accurately reflect their data • Their visual display and presentation are well done</td>
<td>Data is fairly well organized • Their conclusions don’t quite reflect all of their data • Their visual display and presentation are adequate, but not exceptional.</td>
<td>Data is not well organized • They do not know how to use the data to reach a conclusion • Their visual display and presentation are poor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Discussion</th>
<th>Excellent</th>
<th>Satisfactory</th>
<th>Needs Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Answer all guiding questions • Thoroughly understand how their experiment relates to the colonization of islands by plants • Thoughtfully compare their results with Darwin’s</td>
<td>Able to answer some of the guiding questions • Partially understand how their experiment relates to the colonization of islands by plants • They partially understand how their results compare with Darwin’s</td>
<td>Don’t answer guiding questions • Don’t understand how their experiment relates to the colonization of islands by plants • Don’t understand how their results compare to Darwin’s</td>
</tr>
</tbody>
</table>
### Teacher’s Guide Unit 3—What Is the Evidence for Evolution? In-depth Investigation Assessment Rubric

<table>
<thead>
<tr>
<th><strong>Team Process</strong></th>
<th><strong>Excellent</strong></th>
<th><strong>Satisfactory</strong></th>
<th><strong>Needs Improvement</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work well together, dividing the job of counting amino acid differences in the different animals • Do backup counts and check with each other to confirm counting accuracy, re-counting if there is not a match • Help each other with any questions of understanding or procedure</td>
<td>Work together to divide the job of counting amino acid differences • Do not double check each other • Do not often take the initiative of asking questions or checking each other's understanding</td>
<td>Do not divide the counting task • One or two do the counting, while the others are not engaged • Little or no effort by anyone to get everyone involved or to offer or seek help in understanding</td>
</tr>
<tr>
<td></td>
<td>Record their counts in the proper spaces on the cladogram • Find that their results are consistent with the counts by other teams</td>
<td>Find and record the differences for all requested animals, but they may not all be confident of the accuracy of all counts, or there may be errors • Do not check this with other teams</td>
<td>Do not get total counts for every animal requested • Cladogram spaces are not all completed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Discussion</strong></th>
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<tbody>
<tr>
<td></td>
<td>Discuss each question before arriving at a consensus response for each question • Any student at random can explain any given answer, and can accurately explain the main points of the objective • All analysis questions are accurately answered</td>
<td>Do not always initiate discussion or seek help when needed • Some students may not be involved in the process • May not be able to explain all answers or the main points of the objective • Able to answer most of the analysis questions</td>
<td>Do not understand the questions • Cannot explain any of the objective items • Do not answer most of the analysis questions</td>
</tr>
</tbody>
</table>

### Teacher’s Guide Unit 4—How Does Evolution Work? In-depth Investigation Assessment Rubric

<table>
<thead>
<tr>
<th><strong>Team Process</strong></th>
<th><strong>Excellent</strong></th>
<th><strong>Satisfactory</strong></th>
<th><strong>Needs Improvement</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work well together to create beaks and conduct their simulation • Work well to analyze their data</td>
<td>Work together to create beaks and conduct their simulation • Have some problems analyzing their data</td>
<td>Don't work together to create their beaks and conduct their simulation • Don't understand how to analyze their data</td>
</tr>
<tr>
<td></td>
<td>Data is well organized • Their conclusions accurately reflect their data</td>
<td>Data is fairly well organized • Their conclusions don't quite reflect all of their data</td>
<td>Data is not well organized • They do not know how to use the data to reach a conclusion</td>
</tr>
<tr>
<td></td>
<td>Thoroughly understand how their simulation relates to natural selection and how it is similar and different than the real world</td>
<td>Partially understand how their simulation relates to natural selection and how it is similar and different than the real world</td>
<td>Don't understand how their simulation relates to natural selection and how it is similar and different than the real world</td>
</tr>
</tbody>
</table>

### Teacher’s Guide Unit 5—How Did Humans Evolve? In-depth Investigation Assessment Rubric

<table>
<thead>
<tr>
<th><strong>Team Process</strong></th>
<th><strong>Excellent</strong></th>
<th><strong>Satisfactory</strong></th>
<th><strong>Needs Improvement</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work well together to map the data • Work well to analyze the data and answer discussion questions • Listen to all team members' ideas</td>
<td>Work together fairly well to map the data • Have some problems analyzing the data and answering discussion questions • Listen to each other fairly well</td>
<td>Don't work together to map the data • Don't understand how to analyze the data and answer the discussion questions • Don't listen to each other's suggestions</td>
</tr>
<tr>
<td></td>
<td>Data is mapped accurately • Their conclusions accurately reflect the data</td>
<td>Data is mapped fairly accurately • Their conclusions don't quite reflect the data</td>
<td>Data is not mapped accurately • They do not understand how to interpret the data</td>
</tr>
<tr>
<td></td>
<td>Answer all discussion questions • Thoroughly understand how to interpret hominid migration from the fossil data</td>
<td>Able to answer some of the discussion questions • Partially understand how to interpret hominid migration from the fossil data</td>
<td>Don't answer discussion questions • Don't understand how to interpret hominid migration from the fossil data</td>
</tr>
</tbody>
</table>

### Teacher’s Guide Unit 6—Why Does Evolution Matter Now? In-depth Investigation Assessment Rubric

<table>
<thead>
<tr>
<th><strong>Team Process</strong></th>
<th><strong>Excellent</strong></th>
<th><strong>Satisfactory</strong></th>
<th><strong>Needs Improvement</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Excellent research using many reliable resources</td>
<td>Research includes a few good resources</td>
<td>Poor research, relying on few sources whose reliability is questionable</td>
</tr>
<tr>
<td></td>
<td>Provide excellent information from assigned point of view • Do excellent job staging and running Town Meeting • Article is well written and offers conclusions based on the variety of information presented</td>
<td>Provide adequate information from assigned point of view • Do fairly good job staging and running Town Meeting • Article is fairly well done and is mostly based on information presented</td>
<td>Doesn't provide information from assigned point of view • Do poor job staging and running Town Meeting • Article is poorly written and does not reflect information in class presentations</td>
</tr>
<tr>
<td></td>
<td>Thoroughly understand different points of view about the topic and can discuss the pros and cons of each position</td>
<td>Partially understand different points of view and can discuss the pros and cons of some positions</td>
<td>Don't understand the different points of views and cannot intelligently discuss the pros and cons of different positions</td>
</tr>
</tbody>
</table>
adaptation
any heritable characteristic of an organism that improves its ability to survive and reproduce in its environment; also used to describe the process of genetic change within a population, as influenced by natural selection

amino acid sequence
a series of amino acids, the building blocks of proteins, usually coded for by DNA (exceptions are those coded for by the RNA of certain viruses, such as HIV)

antibiotic resistance
a heritable trait in microorganisms that enables them to survive in the presence of an antibiotic

artifact
an object made by humans that has been preserved and can be studied to learn about a particular time period

artificial selection
the process by which humans breed animals and cultivate crops to ensure that future generations have specific desirable characteristics; in artificial selection, breeders select the most desirable variants in a plant or animal population, and selectively breed them with other desirable individuals

australopithecine
a group of bipedal hominid species belonging to the genus Australopithecus that lived between 4.2 and 1.4 mya

Australopithecus afarensis
an early australopithecine species that was bipedal; known fossils date between 3.6 and 2.9 mya (for example, Lucy)

big bang theory
theory that states that the universe began in a state of compression to infinite density and that in one instant all matter and energy began expanding and they have continued expanding ever since

bioengineered food
food that has been produced through genetic modification using techniques of genetic engineering

biogeography
the study of patterns of geographical distribution of plants and animals across the Earth, and of the changes in those distributions over time

biosphere
the part of the Earth and its atmosphere capable of sustaining life

Cenozoic
the era of geologic time from 65 mya to the present, a time when the modern continents formed and modern animals and plants evolved

centromere
a point on a chromosome that is involved in separating the copies of the chromosome produced during cell division; during this division, paired chromosomes look somewhat like an X, and the centromere is the constriction in the center

cladogram
a branching diagram that illustrates hypotheses about the evolutionary relationships among groups of organisms; cladograms can be considered as a special type of phylogenetic tree that concentrates on the order in which different groups branched off from their common ancestors

coevolution
evolution in two or more species, such as a predator and its prey, or a parasite and its host, in which evolutionary changes in one species influence the evolution of the other species

contrivance
an object or characteristics used or modified to do something clearly different from its usual use

creationism
the religious doctrine that all living things on Earth were each created separately, in more or less their present form, by a supernatural creator, as stated in the Bible; the precise beliefs of different creationist groups vary widely

“creation science”
an assortment of many different, non-scientific attempts to disprove evolutionary theory, and efforts to prove that the complexity of living things can be explained only by the action of an “intelligent designer”

DNA base sequence
a chain of repeating units of deoxyribonucleotides (adenine, guanine, cytosine, thymine) arranged in a particular pattern

enzyme
a protein that acts as a catalyst for chemical reactions

Eocene
from 54 to 38 mya, the second oldest of the five major epochs of the Tertiary Period; it is often known for the rise of mammals

evolution
in general terms, biological evolution is the process of change by which new species develop from preexisting species over time; in genetic terms, evolution can be defined as any change in the frequency of alleles in populations of organisms from generation to generation

fact
a natural phenomenon repeatedly confirmed by observation

fossil
most commonly, an organism, a physical part of an organism, or an imprint of an organism that has been preserved from ancient times in rock, amber, or by some other means; new techniques have also revealed the existence of cellular and molecular fossils

founder effect
the loss of genetic variation when a new colony is formed by a very small number of individuals from a larger population

genetic drift
changes in the frequencies of alleles in a population that occur by chance, rather than because of natural selection

genetic engineering
removing genes from the DNA of one species and splicing them into the DNA of another species, using the techniques of molecular biology

half-life
the amount of time it takes for one half of the atoms in a radioactive isotope to decay to a stable form

hominids
members of the family Hominidae, which includes only modern humans and their ancestors

Homo erectus
a species of hominid that lived between 1.8 mya and 300,000 years ago; the first Homo species to migrate beyond Africa

Homo habilis
a species of hominid that lived between 1.9 and 1.8 mya, the first species in genus Homo, and the first hominid associated with clear evidence of tool manufacture and use

Homo neanderthalensis
a species of hominid that lived between 150,000 and 30,000 years ago in Europe and Western Asia, originally thought to be a geographic variant of Homo sapiens, now generally accepted to be a distinct species
beneficial, harmful, or neutral

error in replication of DNA; mutations can be

mitochondrial DNA is passed to offspring from

are generally carried in egg cells but not in sperm,

ter cells, reducing the number of chromosomes in

a type of cell division that occurs only in the repro-

isotope

an atom that shares the same atomic number and

law

a description of how a natural phenomenon will

meiosis

a type of cell division that occurs only in the repro-

natural selection

a process by which the forms of organisms in a

Neanderthal

a hominid, similar to but distinct from, modern

paleoanthropologist

someone who uses fossil evidence to study early

pathogen

a microorganism that causes disease

pesticide-resistant insects

insects with the ability to survive and reproduce

phylogeny

the study of ancestral relations among species,

postulate

a basic principle

radiometric dating

a dating technique that uses the decay rate of

recombination

the appearance in offspring of different gene

relationalism

the process of ordering fossils, rocks, and geolog-

vestigial

structures that have been greatly reduced in size

Homo sapiens

modern humans, evolved to present form about

homologous structures

structures shared by a set of related species

hypothosis

an explanation of one or more phenomena in

intelligent design

the non-scientific argument that complex biological

inversion

a segment of a chromosome that has been turned

iso坪

an atom that shares the same atomic number and

ning by natural laws, cannot be tested by scientific

supernatural

relating to phenomena that cannot be described

theory

a well-substantiated explanation of some aspect

transitional fossil

a fossil, or group of fossils, representing a series

vestigial

structures that have been greatly reduced in size

science

a way of knowing about the natural world based

species

usually defined as a group of organisms capable

symbiosis

a relationship of mutual benefit between two

taxon

a group in biological classification such as

theory

a well-substantiated explanation of some aspect

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a fossil, or group of fossils, representing a series

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## Show One: Darwin’s Dangerous Idea (two hours)

**Summary:** Introduction to Charles Darwin and his theory of evolution by natural selection.

### Segment 1
- **Length:** 4 min.
- **Starting image:** Darwin and Fitzroy lead horses
- **Ending image:** Portrait of Darwin
- **Commentary from:** Daniel Dennett

### Segment 2
- **Approximate starting time:** 4 min.
- **Length:** 6 min.
- **Starting image:** London, ships at dock
- **Ending image:** Darwin talking to Fitzroy

### Segment 3
- **Length:** 7 min., 30 sec.
- **Starting image:** Darwin and Erasmus at Geological Society
- **Ending image:** Darwin drawing tree of life

### Segment 4
- **Length:** 5 min.
- **Starting image:** Annie’s gravestone
- **Ending image:** Annie looking down

### Segment 5
- **Length:** 3 min.
- **Starting image:** Trees outside cottage
- **Ending image:** Darwin studying barnacles

### Segment 6
- **Length:** 2 min., 30 sec.
- **Starting image:** Chimp Dr. license plate
- **Ending image:** Levine

### Segment 7
- **Approximate starting time:** 20 min., 30 sec.
- **Length:** 9 min.
- **Starting image:** Darwin talking to Fitzroy
- **Ending image:** Emma looking down

### Segment 8
- **Length:** 1 min., 30 sec.
- **Starting image:** James Moore
- **Ending image:** beetles

### Segment 9
- **Approximate starting time:** 40 min.
- **Length:** 11 min., 30 sec.
- **Starting image:** Darwin studying barnacles
- **Ending image:** james swimming

### Segment 10
- **Approximate starting time:** 51 min., 30 sec.
- **Length:** 6 min., 30 sec.
- **Starting image:** Darwin and Fitzroy
- **Ending image:** Darwin studying barnacles

### Segment 11
- **Length:** 13 min.
- **Starting image:** Darwin looking through microscope
- **Ending image:** Charles Walcott found 540 million-year-old sea animals suddenly appear on Earth; in 1913, Charles Walcott found 540 million-year-old sea creatures in the Burgess Shale.

### Segment 12
- **Approximate starting time:** 69 min.
- **Length:** 12 min.
- **Starting image:** Darwin looking through microscope
- **Ending image:** Darwin studying barnacles

### Segment 13
- **Approximate starting time:** 81 min.
- **Length:** 5 min.
- **Starting image:** Darwin looking through microscope
- **Ending image:** Darwin studying barnacles

### Segment 14
- **Approximate starting time:** 86 min.
- **Length:** 13 min.
- **Starting image:** Darwin looking through microscope
- **Ending image:** Darwin studying barnacles

### Segment 15
- **Approximate starting time:** 99 min.
- **Length:** 4 min., 30 sec.
- **Starting image:** man with beard
- **Ending image:** DNA from different animals

### Segment 16
- **Length:** 2 min.
- **Starting image:** Darwin talking to Fitzroy
- **Ending image:** Darwin in chair

### Segment 17
- **Approximate starting time:** 127 min., 30 sec.
- **Length:** 2 min.
- **Starting image:** church in England
- **Ending image:** Darwin’s face

### Show Two: Great Transformations (one hour)

**Summary:** Examines the history of life on Earth, including the role of transitional fossils in deciphering the fossil record.

### Segment 1
- **Length:** 2 min., 30 sec.
- **Starting image:** forest
- **Ending image:** Chimp Dr. license plate

### Segment 2
- **Approximate starting time:** 2 min.
- **Length:** 1 min., 30 sec.
- **Starting image:** bird flying
- **Ending image:** animation sequence

### Segment 3
- **Length:** 11 min.
- **Starting image:** bird flying
- **Ending image:** animation sequence

### Segment 4
- **Approximate starting time:** 14 min.
- **Length:** 3 min.
- **Starting image:** dolphins
- **Ending image:** river bank

### Segment 5
- **Approximate starting time:** 17 min.
- **Length:** 3 min.
- **Starting image:** dolphins
- **Ending image:** river bank

### Segment 6
- **Approximate starting time:** 19 min.
- **Length:** 4 min.
- **Starting image:** Volvo on road
- **Ending image:** river bank

### Segment 7
- **Approximate starting time:** 21 min.
- **Length:** 1 min.
- **Starting image:** people at café
- **Ending image:** animation sequence

### Segment 8
- **Approximate starting time:** 23 min.
- **Length:** 5 min.
- **Starting image:** Neil Shubin
- **Ending image:** animation sequence

### Segment 9
- **Approximate starting time:** 25 min.
- **Length:** 5 min.
- **Starting image:** fossil
- **Ending image:** animation sequence

### Segment 10
- **Approximate starting time:** 27 min.
- **Length:** 5 min.
- **Starting image:** fossil
- **Ending image:** animation sequence

### Segment 11
- **Approximate starting time:** 29 min.
- **Length:** 5 min.
- **Starting image:** fossil
- **Ending image:** animation sequence

### Segment 12
- **Approximate starting time:** 31 min.
- **Length:** 5 min.
- **Starting image:** fossil
- **Ending image:** animation sequence

### Segment 13
- **Approximate starting time:** 33 min.
- **Length:** 5 min.
- **Starting image:** fossil
- **Ending image:** animation sequence

### Segment 14
- **Approximate starting time:** 35 min.
- **Length:** 5 min.
- **Starting image:** fossil
- **Ending image:** animation sequence

### Segment 15
- **Approximate starting time:** 37 min.
- **Length:** 5 min.
- **Starting image:** fossil
- **Ending image:** animation sequence

### Segment 16
- **Approximate starting time:** 39 min.
- **Length:** 5 min.
- **Starting image:** fossil
- **Ending image:** animation sequence

### Segment 17
- **Approximate starting time:** 41 min.
- **Length:** 5 min.
- **Starting image:** fossil
- **Ending image:** animation sequence

### Significance:
- Evolution is a process by which species change over time due to natural selection, where individuals with traits better suited to their environment are more likely to survive and reproduce, passing those traits on to their offspring. Over generations, these traits accumulate, leading to the evolution of new species. This process is driven by various factors such as environmental pressures, mutations, and genetic drift. Understanding evolution is crucial for explaining the diversity of life on Earth and for addressing modern issues such as conservation and climate change.
Antibiotic-resistant strains of tuberculosis reign in crowded Russian prisons; microbiologist Alex Goldfarb trying to change the way TB treated.

Segment 6
Approximate starting time: 25 min., 15 sec.  
Length: 9 min., 30 sec.  
Starting image: man walking dog  
Ending image: man walking away from camera  
Evolution can domesticate a disease.

Segment 7
Approximate starting time: 31 min., 20 sec.  
Length: 7 min.  
Starting image: cheetah fur  
Ending image: lion's face  
Geneticist Stephen O'Brien studies feline resistance to immunodeficiency virus; O'Brien found mutation in humans that protects against HIV infection.

Segment 8
Approximate starting time: 41 min., 15 sec.  
Length: 9 min.  
Starting image: tropical forest  
Ending image: "antibacterial" label  
Ted Schultz and Uli Schulte-Moeller studying leafcutter ants in the Amazon rainforest; grad student Cameron Currie found alliance of four organisms.

Segment 9
Approximate starting time: 50 min., 15 sec.  
Length: 4 min.  
Starting image: doctor in hospital  
Ending image: boy leading cows  
Pediatrician Erika Von Mutius treats allergies and asthma; compares children of farmers and non-farmers.

Segment 10
Approximate starting time: 54 min., 15 sec.  
Length: 1 min., 30 sec.  
Starting image: crowd  
Ending image: E.O. Wilson  
E.O. Wilson: mistake for us to separate ourselves from all other organisms.

Show Five: Why Sex? (one hour)
Summary: Examines how sex evolved as the means of reproduction.

Segment 1
Length: 2 min.  
Starting image: molting peacock  
Ending image: walrus couple in sunset  
Prologue outlines topic of sexual selection.

Segment 2
Approximate starting time: 2 min.  
Length: 5 min.  
Starting image: Texas landscape  
Ending image: Meredith Small  
Jerry Johnson studies a type of lizard that clones itself.

Segment 3
Approximate starting time: 7 min.  
Length: 7 min., 15 sec.  
Starting image: Mexican village  
Ending image: men playing basketball  
Robert Vrijenhoek studies a minnow that uses both sexual and asexual reproduction; sex generates variability among offspring and is the best defense against evolving enemies.

Segment 4
Approximate starting time: 14 min., 15 sec.  
Length: 3 min.  
Starting image: single-celled organisms  
Ending image: flying peacock  
Sex evolved from a random encounter of two single-celled creatures; males and females evolved with sperm and eggs.

Segment 5
Approximate starting time: 17 min., 15 sec.  
Length: 8 min.  
Starting image: Marion Petrie  
Ending image: Katharine Horn  
Males compete for the right to mate with females and females choose the mate with the best genes; Petrie has found that peacocks choose peacocks with the largest tails.

Segment 6
Approximate starting time: 25 min., 15 sec.  
Length: 5 min., 30 sec.  
Starting image: man walking in woods  
Ending image: jacana chick  
Stephen Emrich studies songbirds; 40% of chicks do not belong to the father raising them; female Wattled Jacanas have taken on a male role.

Segment 7
Approximate starting time: 30 min., 45 sec.  
Length: 8 min., 30 sec.  
Starting image: Tree of Life animation  
Ending image: animation of early humans  
Chimpanzees and bonobos have evolved very different social roles due to an ancient drought; chimps make war and bonobos make love.

Segment 8
Approximate starting time: 39 min., 15 sec.  
Length: 7 min.  
Starting image: medical school  
Ending image: Vincent van Gogh  
Geoffrey Miller believes that artistic expression comes from a drive to impress the opposite sex.

Segment 9
Approximate starting time: 46 min., 15 sec.  
Length: 5 min., 30 sec.  
Starting image: men walking on campus  
Ending image: Picasso painting  
Starting image: cranes courting  
Starting image: family  
The ancestors who had the most surviving offspring were those who found sex to be fun and parenting rewarding.

Show Six: The Mind’s Big Bang (one hour)
Summary: Examines the evolution of the human mind.

Segment 1
Length: 2 min., 30 sec.  
Starting image: modern human skull  
Ending image: people running past sunset  
Archaeologist Randy White studies cave paintings; modern humans developed communication and culture.

Segment 2
Approximate starting time: 51 min., 45 sec.  
Length: 5 min.  
Starting image: modern human skeleton  
Ending image: cranial rounding  
Modern humans in ancient Europe encountered Neanderthals, a species that shared many characteristics but were more massive and less sophisticated.

Segment 3
Approximate starting time: 59 min.  
Length: 1 min., 30 sec.  
Starting image: modern human skull  
Ending image: John Shea pulling spear out of ground  
John Shea is trying to understand the differences between Neanderthals and modern humans by recreating some of their activities.

Segment 4
Approximate starting time: 66 min., 30 sec.  
Length: 1 min., 30 sec.  
Starting image: ancient arrowheads  
Ending image: shell necklace  
Neanderthals lived in isolated pockets, while modern humans lived in larger groups and used portable art as a means of communication.

Segment 5
Approximate starting time: 78 min.  
Length: 1 min., 30 sec.  
Starting image: fireplace  
Ending image: stalactites in cave  
Michel Lorblanchet studies the technique of cave painting; he can reproduce “spit painting.”

Segment 6
Approximate starting time: 90 min.  
Length: 1 min., 30 sec.  
Starting image: trees  
Ending image: Steven Pinker  
Richard Klein thinks modern humans became innovative because of a change in the brain; Stephen Pinker thinks there were many changes over a long period of time.

Segment 7
Approximate starting time: 98 min., 30 sec.  
Length: 15 min.  
Starting image: Richard Wrangham walking in forest  
Ending image: boy signing  
Chimpanzees use the threat of physical force for social climbing; with humans, language is the key to complex relationships; in 1980, deaf village children developed their own sign language in Nicaragua.

Segment 8
Approximate starting time: 123 min., 30 sec.  
Length: 4 min., 30 sec.  
Starting image: Richard Dawkins walking in woods  
Ending image: two girls talking  
Dawkins thinks that those who could use language left the most offspring; Robin Dunbar has found that 2/3 of all conversations are gossip about social relationships.
Segment 13
Approximate starting time: 38 min.
Length: 5 min., 30 sec.
Starting image: Richard Dawkins
Ending image: Susan Blackmore
Susan Blackmore studies memes; today cultural evolution more likely than genetic evolution.

Segment 14
Approximate starting time: 43 min., 30 sec.
Length: 1 min.
Starting image: two people running on plain
Ending image: cave painting of hand
The mind's "Big Bang" led to a new era of the evolution of ideas.

Show Seven: What About God?
(one hour)
Summary: Examines the controversy surrounding evolution.

Segment 1
Length: 1 min., 30 sec.
Starting image: blue sky behind cliff
Christian fundamentalists debate with scientists and teachers over the future of religion, science, and science education.

Segment 2
Approximate starting time: 1 min., 30 sec.
Length: 4 min.
Starting image: church exterior
Ken Ham, a fundamentalist, argues that the Bible is wrong in regards to science, why trust it for morality?

Segment 3
Approximate starting time: 5 min., 30 sec.
Length: 2 min., 15 sec.
Starting image: speaker in front of crowd
Since the Scopes Monkey Trial in 1925, 37 anti-evolution bills have been passed in 20 states.

Segment 4
Approximate starting time: 7 min., 45 sec.
Length: 12 min.
Starting image: light coming through crevice
Rachel Benton, an anthropologist, discusses with students from Wheaton College how scientists determine the age of a watering hole; Nathan Bard tries to reconcile God with science.

Segment 5
Approximate starting time: 19 min., 45 sec.
Length: 3 min., 30 sec.
Starting image: students leaving building
Emi Hayashi, a student at Wheaton, is comfortable with both science and religion.

Segment 6
Approximate starting time: 23 min., 15 sec.
Length: 7 min.
Starting image: Wheaton College sign
Claire McKinney is both a Christian and a science teacher; over half the students and 35 faculty members at Jefferson High petitioned for special creation alongside evolution; the school board decided that they could address the students’ concerns through a humanities class.

Segment 7
Approximate starting time: 30 min., 15 sec.
Length: 4 min., 30 sec.
Starting image: group of boys on stage
Peter Slayton, an anthropology major and young Earth creationist, says you can't pick sides because then you're doing bad science or bad theology.

Segment 8
Approximate starting time: 34 min., 45 sec.
Length: 1 minute
Starting image: Ken Ham in hallway
Ham thinks people will develop a sense of purposelessness if they're just a mixture of chemicals.

Segment 9
Approximate starting time: 35 min., 45 sec.
Length: 3 min., 30 sec.
Starting image: classroom
Ending image: science teacher Stephen Randak
Students at Jefferson High asked for the teaching of special creation alongside evolution; the school board decided that they could address the students’ concerns through a humanities class.

Segment 10
Approximate starting time: 39 min., 15 sec.
Length: 6 min.
Starting image: Eugenie Scott
Ending image: students at lockers
Eugenie Scott, of the National Center for Science Education, said, “All evolution as a science can tell us is what happened. Can't tell us who done it.”

Segment 11
Approximate starting time: 43 min., 30 sec.
Length: 2 min.
Starting image: open book
Ending image: Eugenie Scott
In 1961, Henry Morris and John Whitcomb published a book called The Genesis Flood in which they selected scientific evidence to demonstrate that the Earth was created as described in Genesis.

Segment 12
Approximate starting time: 45 min., 30 sec.
Length: 6 min.
Starting image: students at podium
Ending image: Claire McKinney
Students at Jefferson High asked for the teaching of special creation alongside evolution; the school board decided that they could address the students’ concerns through a humanities class.

Segment 13
Approximate starting time: 51 min., 30 sec.
Length: 3 min.
Starting image: a Christian a capella group at Wheaton
Ending image: a sunset
Stan Jones agrees that Wheaton is placing students’ faith at risk by helping them examine difficult questions, but in the real world their faith is always at risk.