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SET 3

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TOEFL PRACTICE TESTS

SET 3

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PREFACE

Are you preparing to take the TOEFL test? Why not study with the ultimate guide on the market that contains 8 full-length authentic TOEFL tests? TOEFL iBT Practice Tests, Set 3 will satisfy all your test prep practice needs so that you can achieve the highest score on the real test. This book contains eight TOEFL® practice tests with authentic reading, listening, speaking, and writing questions, plus an answer key and sample answers for each test. This guide reflects the all the latest changes and updates to the test, including the change to the Writing Test in July, 2023.

You also get a downloadable audio file for the listening, speaking, and writing sections. With sample responses to the Speaking and Writing Sections, you will learn how to construct a proper answer and how to integrate your speaking, listening, and writing skills to demonstrate English proficiency.

The book features:

- 8 full-length sample TOEFL tests
- Downloadable audio for all the listening, speaking and writing sections
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PRACTICE TEST 1

READING

A NEW PERSPECTIVE ON EARLY CITIES

Archaeologists have found evidence suggesting that 4,500 years before the Egyptian pyramids were built, people living in the Middle East were forming the first cities ever constructed. Uncovered in the region of modern-day Turkey, the remains of a site called Çatalhöyük demonstrate that cities are an ancient form of social organization. At its largest, this urban center may have been home to as many as 10,000 people. The idea of such a large concentrated population has intrigued many anthropologists and sparked debate over the reasons why some nomadic cultures eventually settled down and built cities. For many years, scholars had thought they understood why cities developed. However, new interpretations of Çatalhöyük's remains have cast doubt on their assumptions.

Previously, historians and archaeologists believed that the development of agriculture was the primary factor responsible for transforming nomadic populations into societies with permanent settlements because the two events were thought to have occurred in the same general time period. The introduction of agriculture, they say, would have revolutionized societies, bringing people together to live in larger communities based around productive farmlands — a change referred to as the "Neolithic Revolution."

The main support for this argument came from the archaeological theory that a major climate change preceded the development of agriculture. It was hypothesized that a global climate change caused the land to become very

dry, and the lack of rainfall forced people to settle down and begin practicing agriculture. They moved closer together in order to help one another survive in an inhospitable, barren environment, cultivating farmlands and building irrigation systems to support the plants they relied on for food. This theory, however, has recently come into question, as geologists and botanists now believe that the climate change actually caused the land to become wetter, thereby increasing natural fertility. Without the support of the dry climate theory, the evidence suggesting that agriculture led nomadic cultures to build permanent settlements is very thin.

In fact, analyses of Çatalhöyük have shown that the inhabitants of the city relied extensively on wild plants and animals for food. The geography surrounding Çatalhöyük would have provided plenty of natural, edible plants for the city's population to gather. From organic remains found inside the city's houses, archaeologists have determined that people living in Çatalhöyük ate wild plants such as tubers, hackberries, and acorns. Because of these naturally occurring food sources, inhabitants of Çatalhöyük would not have needed to practice agriculture in order to survive. Most likely, Çatalhöyük retained the foraging characteristics of a hunter gatherer society. Thus, it demonstrates the improbability of agriculture being the main catalyst for the emergence of the first cities.

Ian Hodder, the director of the Çatalhöyük excavation project, has another theory about why cities first began to develop. He agrees with the idea of a Neolithic Revolution that transformed nomadic societies into permanent settlements, but he suggests a very different cause. Hodder believes that, instead of resulting from practical environmental concerns like the land's suitability for crops or the availability of water, urban development was caused by a revolution in human thought and the social needs and interests that subsequently arose.

Hodder's hypothesis takes into consideration the abundance of artistic work that has been discovered in the remains of Çatalhöyük. Murals, sculptures, and figurines found in the city appear to have functioned as ritual symbols that were an important part of Çatalhöyük culture. The introduction of this kind of symbolism in ancient cultures represents a major shift in human mentality. It indicates that people were beginning to interact with their world

in different ways. In other parts of the Middle East and in Europe as well, similar sculptures of women and animals found during excavations of ancient cities show that symbolic art was a common theme in the very first permanent settlements. Their prevalence has led archaeologists to consider these artifacts in a new way — as the cause behind permanent settlements. Symbolic art can be considered evidence supporting the idea that people's emerging interest in artistic expression and spirituality may actually have been the main factor causing them to settle in larger communities, where they had better opportunities to share and develop these practices.

Paragraph 1

Archaeologists have found evidence suggesting that 4,500 years before the Egyptian pyramids were built, people living in the Middle East were forming the first cities ever constructed. Uncovered in the region of modern-day Turkey, the remains of a site called Çatalhöyük demonstrate that cities are an ancient form of social organization. At its largest, this urban center may have been home to as many as 10,000 people. The idea of such a large concentrated population has intrigued many anthropologists and sparked debate over the reasons why some nomadic cultures eventually settled down and built cities. For many years, scholars had thought they understood why cities developed. However, new interpretations of Çatalhöyük's remains have cast doubt on their assumptions.

1. Why does the author mention the Egyptian pyramids in paragraph 1?

A. To introduce a theory about why cities developed
B. To give an example of one of the first permanent settlements
C. To emphasize the antiquity of the earliest cities

D. To illustrate the achievements of nomadic cultures

2. The word concentrated in the passage is closest in meaning to

A. skilled
B. centralized
C. advanced
D. controlled

Paragraph 2

Previously, historians and archaeologists believed that the development of agriculture was the primary factor responsible for transforming nomadic populations into societies with permanent settlements because the two events were thought to have occurred in the same general time period. The introduction of agriculture, they say, would have revolutionized societies, bringing people together to live in larger communities based around productive farmlands — a change referred to as the "Neolithic Revolution."

3. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

A. Since the innovation of agriculture and the development of cities took place around the same time, the former was assumed to have caused the latter.
B. If it had not been for the development of agricultural practices, human population would never have constructed permanent settlements.
C. The historical time period during which cities first began to appear saw the introduction of many other human activities, such as the practice of agriculture.
D. Historians believe that agricultural and social developments both had a major impact on nomadic societies.

Paragraph 3

The main support for this argument came from the archaeological theory that a major climate change preceded the development of agriculture. It was hypothesized that a global climate change caused the land to become very dry, and the lack of rainfall forced people to settle down and begin practicing agriculture. They moved closer together in order to help one another survive in an inhospitable, barren environment, cultivating farmlands and building irrigation systems to support the plants they relied on for food. This theory, however, has recently come into question, as geologists and botanists now believe that the climate change actually caused the land to become wetter, thereby increasing natural fertility. Without the support of the dry climate theory, the evidence suggesting that agriculture led nomadic cultures to build permanent settlements is very thin.

4. What can be inferred from paragraph 3 about ancient nomadic people?

A. They relied on people in cities for food.
B. They practiced agriculture during rainy times of the year.
C. They were vulnerable to changes in natural conditions.
D. They helped each other during times of need.

Paragraph 4

In fact, analyses of Çatalhöyük have shown that the inhabitants of the city relied extensively on wild plants and animals for food. The geography surrounding Çatalhöyük would have provided plenty of natural, edible plants for the city's population to gather. From organic remains found inside the city's houses, archaeologists have determined that people living in Çatalhöyük ate wild plants such as tubers, hackberries, and acorns. Because of these naturally occurring food sources, inhabitants of Çatalhöyük would not have needed to practice agriculture in order to survive. Most likely, Çatalhöyük retained the foraging characteristics of a hunter gatherer society.

Thus, it demonstrates the improbability of agriculture being the main catalyst for the emergence of the first cities.

5. Why does the author mention the types of wild plant remains found at Çatalhöyük in paragraph 4?

A. To identify the differences between the diets of settled and nomadic populations
B. To explain evidence showing that city inhabitants did not depend on domesticated food sources
C. To describe some of the features of the houses found at the archaeological site
D. To imply that wild food sources would not have provided enough nourishment for an entire city

Paragraph 5

Ian Hodder, the director of the Çatalhöyük excavation project, has another theory about why cities first began to develop. He agrees with the idea of a Neolithic Revolution that transformed nomadic societies into permanent settlements, but he suggests a very different cause. Hodder believes that, instead of resulting from practical environmental concerns like the land's suitability for crops or the availability of water, urban development was caused by a revolution in human thought and the social needs and interests that subsequently arose.

6. According to paragraph 5, Ian Hodder's theory

A. focuses on mental rather than physical changes
B. disproves the notion of a Neolithic Revolution
C. deals mostly with environmental factors
D. suggests that cities needed abundant sources of water

Paragraph 6

Hodder's hypothesis takes into consideration the abundance of artistic work that has been discovered in the remains of Çatalhöyük. Murals, sculptures, and figurines found in the city appear to have functioned as ritual symbols that were an important part of Çatalhöyük culture. The introduction of this kind of symbolism in ancient cultures represents a major shift in human mentality. It indicates that people were beginning to interact with their world in different ways. In other parts of the Middle East and in Europe as well, similar sculptures of women and animals found during excavations of ancient cities show that symbolic art was a common theme in the very first permanent settlements. Their prevalence has led archaeologists to consider these artifacts in a new way — as the cause behind permanent settlements. Symbolic art can be considered evidence supporting the idea that people's emerging interest in artistic expression and spirituality may actually have been the main factor causing them to settle in larger communities, where they had better opportunities to share and develop these practices.

7. Why does the author mention Middle Eastern and European sculptures in paragraph 6?

A. To explain that early cities were constructed for a variety of reasons
B. To compare the art of nomadic societies to that found in Çatalhöyük
C. To discuss the differences in the art of the two regions
D. To illustrate that symbolic art was not unique to Çatalhöyük

8. According to paragraph 6, artistic pieces found in Çatalhöyük provide evidence of

A. agricultural rituals
B. a shared culture
the city's existence
C. a nomadic heritage

Paragraph 3

The main support for this argument came from the archaeological theory that a major climate change preceded the development of agriculture. It was hypothesized that a global climate change caused the land to become very dry, and the lack of rainfall forced people to settle down and begin practicing agriculture. **[■]** They moved closer together in order to help one another survive in an inhospitable, barren environment, cultivating farmlands and building irrigation systems to support the plants they relied on for food. **[■]** This theory, however, has recently come into question, as geologists and botanists now believe that the climate change actually caused the land to become wetter, thereby increasing natural fertility. **[■]** Without the support of the dry climate theory, the evidence suggesting that agriculture led nomadic cultures to build permanent settlements is very thin. **[■]**

9. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

This would have facilitated the practice of a nomadic lifestyle, not inhibited it.

Where would the sentence best fit? Click on a square [■] to add the sentence to the passage.

10. Directions: An introductory sentence for a brief summary of the passage is provided below Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. *This question is worth 2 points.*

In recent years, there has been a change in archaeologists' perspective on the formation of early cities.

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Answer Choices

A. Wild plants such as tubers, hackberries, and acorns grew in abundance in close proximity to several of the first cities.
B. The current belief that an ancient climate shift made the land more fertile contradicts the theory that a dependence on agriculture led to permanent settlements.
C. An increase in the land's fertility led to innovations in agriculture, which encouraged societies to create permanent settlements.
D. The discovery of remains of wild plants at Çatalhöyük supports the idea that early cities were not formed as a result of agriculture.
E. Residents of Çatalhöyük, though not dependent on one another for food, seem to have shared certain artistic and spiritual interests.
F. Current interpretations of artwork found in early cities have led some archaeologists to believe that permanent settlements resulted from a change in people’s ways of thinking.

FIGURES IN ANCIENT GREEK ASTRONOMY

Around 700 BC, Greek astronomy was something of an offshoot of timekeeping - the Greeks relied on cyclical astronomical events to mark the passage of time. Knowing the length of a year was important for farmers, who relied on seasonal changes in constellations to help them determine when to plant their crops. For centuries, farmers used constellations as a guide for food production, but over time the Greek's study of astronomy diversified; there were many astronomers who were instrumental in the expansion of this science.

Pythagoras was an early figure in Greek astronomy. Although none of his original writings have survived, the central doctrines of Pythagoras's astronomy have been preserved in the work of his followers, the Pythagoreans. Pythagoras's most notable astronomical theory was his conception of the Earth as a spherical celestial body. While his prediction about Earth's shape eventually proved to be fairly accurate, the method that led Pythagoras to that conclusion was probably relatively unscientific, rooted in a personal ideology that bonded mysticism arid mathematics. Impelled by impression that numbers could describe universe, he likely based his hypothesis or hit philosophical belief that spheres were more mathematically perfect than any other shape. Nonetheless, though Pythagoras himself may have only minimally impacted Greer astronomy, his followers forged ahead and occasionally generated legitimate theory about the nature of the universe.

Philolaus was one of those Pythagoreans whose ideas about astronomy, though not popular during his time, were eventually proven to be correct. Contradicting his contemporaries' models of the universe, the model proposed by Philolaus removed the Earth from its position at the center of the universe. In addition, Philolaus was the first to conjecture that the Earth moved, and he recognized that the planet's diurnal motion differed from its annual movement. Without going as far as adopting a heliocentric model of the solar system, Philolaus laid the framework for major improvements in Greek astronomers' understanding of the heavens. Unfortunately this visionary redefinition of the universe was delayed for centuries because prominent philosophers like Aristotle continued to advocate the appealing, albeit incorrect, Earth centered model of the universe.

Basing his theories about astronomy exclusively on plainly observable phenomena, Aristotle inevitably developed flawed theories about the universe. Speculation dominated much of his writings about astronomy, which argued that the Earth was motionless, occupying the center of a universe that was composed of shells encompassing the Earth in nested, spherical layers. Each layer contained components of the universe soma contained water, some air, some planets and some stars. This theory of spheres was meant to elucidate and improve upon a model of the universe submitted by another astronomer, Callippus, but modern astronomers suspect that Aristotle’s revision introduced more questions than it resolved. However, the most damaging consequences of Aristotle's musings astronomy were not so much the concepts themselves as the role they played in misdirecting generations of Greek scientists, for, as a cultural leader, Aristotle's opinions were simultaneously highly regarded and leniently analyzed.

The person credited with making the most cogent contributions to the development of ancient Greek astronomy was Hipparchus, a scientist still held in esteem by many modern-day astronomers. Hipparchus drew much of his information about astronomy from Babylonian sources, studying the culture's accumulated records of eclipses and star coordinates and borrowing some of its ideas about mathematics-trigonometry in particular. Hipparchus founded his work on thorough observations - a fact that lends his work a special credibility absent in some of the works of his Greek predecessors. Adhering to the scientific method, Hipparchus gathered data, analyzed the collected information, applied theories to his facts, and refrained from proposing theories to explain phenomena about which he did not have enough data. Hipparchus's achievements included the creation of what dome argue if the first accurate star map, the calculation of eclipses, the description of lunar and solar motion and the computation of the length of a year. These theories represent the maturation of the Greek ancient astronomy. Although Hipparchus was unable to free himself from the influence Aristotle’s geocentric interpretation of the universe, he managed to supply some durable theories to the field of astronomy.

Glossary:

diurnal: having a twenty-four-hour cycle
heliocentric: a model of the solar system that positions the sun at the center

Paragraph 1

Around 700 BC, Greek astronomy was something of an offshoot of timekeeping - the Greeks relied on cyclical astronomical events to mark the passage of time. Knowing the length of a year was important for farmers, who relied on seasonal changes in constellations to help them determine when to plant their crops. For centuries, farmers used constellations as a guide for food production, but over time the Greek's study of astronomy diversified; there were many astronomers who were instrumental in the expansion of this science.

1. According to paragraph 1, why did the Greeks originally observe constellations?

A. To enlarge their cultural understanding of astronomy
B. To refine their collective knowledge of timekeeping
C. To predict the best times for farming activities
D. To discover wherever constellations changed over time

Paragraph 2

Pythagoras was an early figure in Greek astronomy. Although none of his original writings have survived, the central doctrines of Pythagoras's astronomy have been preserved in the work of his followers, the

Pythagoreans. Pythagoras's most notable astronomical theory was his conception of the Earth as a spherical celestial body. While his prediction about Earth's shape eventually proved to be fairly accurate, the method that led Pythagoras to that conclusion was probably relatively unscientific, rooted in a personal ideology that bonded mysticism arid mathematics. Impelled by impression that numbers could describe universe, he likely based his hypothesis or hit philosophical belief that spheres were more mathematically perfect than any other shape. Nonetheless, though Pythagoras himself may have only minimally impacted Greer astronomy, his followers forged ahead and occasionally generated legitimate theory about the nature of the universe.

2. The word Impelled in the passage is closest in meaning to

A. Driven
B. Surprised
C. Discouraged
D. Tested

Paragraph 3

Philolaus was one of those Pythagoreans whose ideas about astronomy, though not popular during his time, were eventually proven to be correct. Contradicting his contemporaries' models of the universe, the model proposed by Philolaus removed the Earth from its position at the center of the universe. In addition, Philolaus was the first to conjecture that the Earth moved, and he recognized that the planet's diurnal motion differed from its annual movement. Without going as far as adopting a heliocentric model of the solar system, Philolaus laid the framework for major improvements in Greek astronomers' understanding of the heavens. Unfortunately this visionary redefinition of the universe was delayed for centuries because prominent philosophers like Aristotle continued to advocate the appealing, albeit incorrect, Earth centered model of the universe.

3. In paragraph 3, why does the author mention that Philolaus was a

Pythagorean?

A. To name a follower of Pythagorhas who developed valid astronomical theories
B. To demeonstrate that astronomy was highly respected in Greek society
C. To argue that the Greeks formed many of the precepts of modern astronomy
D. To emphasize the value of Pythagoras's own astronomical theories.

Paragraph 4

Basing his theories about astronomy exclusively on plainly observable phenomena, Aristotle inevitably developed flawed theories about the universe. Speculation dominated much of his writings about astronomy, which argued that the Earth was motionless, occupying the center of a universe that was composed of shells encompassing the Earth in nested, spherical layers. Each layer contained components of the universe soma contained water, some air, some planets and some stars. This theory of spheres was meant to elucidate and improve upon a model of the universe submitted by another astronomer, Callippus, but modern astronomers suspect that Aristotle's revision introduced more questions than it resolved. However, the most damaging consequences of Aristotle's musings astronomy were not so much the concepts themselves as the role they played in misdirecting generations of Greek scientists, for, as a cultural leader, Aristotle's opinions were simultaneously highly regarded and leniently analyzed.

4. The word elucidate in the passage is closest in meaning to

A. clarify
B. discredit
C. reinvent
D. double-check

5. Which of the sentences below best expresses the essential information

in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

A. Unfortunately, much of Aristotle's research was poorly reviewed, and generations of Greek scientists disregarded his theories about astronomy.
B. When Aristotle began to develop ideas about astronomy, he was elevated to a prominent position in Greek society.
C. Aristotle was not a particularly strong astronomer, and, unfortunately, many of his concepts were completely incorrect.
D. Because he was well respected, Aristotle faced little criticism, and his inaccurate ideas about astronomy led many others astray.

Paragraph 5

The person credited with making the most cogent contributions to the development of ancient Greek astronomy was Hipparchus, a scientist still held in esteem by many modern-day astronomers. Hipparchus drew much of his information about astronomy from Babylonian sources, studying the culture's accumulated records of eclipses and star coordinates and borrowing some of its ideas about mathematics-trigonometry in particular. Hipparchus founded his work on thorough observations - a fact that lends his work a special credibility absent in some of the works of his Greek predecessors. Adhering to the scientific method, Hipparchus gathered data, analyzed the collected information, applied theories to his facts, and refrained from proposing theories to explain phenomena about which he did not have enough data. Hipparchus's achievements included the creation of what dome argue if the first accurate star map, the calculation of eclipses, the description of lunar and solar motion and the computation of the length of a year. These theories represent the maturation of the Greek ancient astronomy. Although Hipparchus was unable to free himself from the influence Aristotle’s geocentric interpretation of the universe, he managed to supply some durable theories to the field of astronomy.

6. The phrase held in esteem in the passage is closest in meaning to

A. known
B. respected
C. studied
D. doubted

7. What can be inferred about the Greek predecessors of Hipparchus's mentioned in paragraph 5?

A. Some of their theories were based or research that was deficient or unreliable.
B. They did not contribute as much to the field of astronomy as their followers did.
C. They did not refer to the information collected by the astronomers in other cultures.
D. Most of their theory sought to calculate the movements of the sun and moon.

8. According to paragraph 5, what was one of the major flaws in Hipparchus's theories?

A. His lack of applicable research
B. His use of Aristotle's model of the universe
C. His adherence to the scientific method.
D. His incorporation of Babylonian mathematics

Paragraph 5

The person credited with making the most cogent contributions to the development of ancient Greek astronomy was Hipparchus, a scientist still held in esteem by many modern-day astronomers. Hipparchus drew much of his information about astronomy from Babylonian sources, studying the culture's accumulated records of eclipses and star coordinates and borrowing some of its ideas about mathematics-trigonometry in particular. Hipparchus founded his work on thorough observations - a fact that lends his work a

special credibility absent in some of the works of his Greek predecessors. Adhering to the scientific method, Hipparchus gathered data, analyzed the collected information, applied theories to his facts, and refrained from proposing theories to explain phenomena about which he did not have enough data. **[■]** Hipparchus's achievements included the creation of what dome argue if the first accurate star map, the calculation of eclipses, the description of lunar and solar motion and the computation of the length of a year. **[■]** These theories represent the maturation of the Greek ancient astronomy. **[■]** Although Hipparchus was unable to free himself from the influence Aristotle's geocentric interpretation of the universe, he managed to supply some durable theories to the field of astronomy. **[■]**

9. Look at the four squares [■] that indicate where the following sentence could be added to the passage.

This helped reduce the influence that the various specious arguments polluting contemporary scientific thought had on his findings.

Where would the sentence best fit? Click on a square [■] to add the sentence to the passage.

10. Directions: An introductory sentence for a brief summary of the passage is provided below Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. *This question is worth 2 points.*

It is possible to understand the development of ancient Greek astronomy by looking at some of its central figures.

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Answer Choices

A. When Pythagoras began to hypothesize about the heavens, he became the most important astronomer in Greek history.
B. Developing Pythagorean idea of a spherical Earth, Philolauas suggested that it was not located at the center of the universe.
C. Unfortunately, Philolaus's unorthodox research processes led to his expulsion from the scientific community and caused a slump in the advancement of Greek astronomy.
D. The evolution of Greek astronomy was delayed by Aristotle’s Earth-centered theory, which persisted some time because people respected him and accepted his belief.
E. Some of the most important advancements in astronomy were forwarded by Hipparchus, who theorized about eclipses, lunar and solar motion, and the length of a year.
F. Because of their mastery of mathematics and astronomy, the Babylonians were quite important to ancient Greek astronomers.

THE EVOLUTION OF BIRDS

Centuries ago, it was noted that birds and reptiles shared common characteristics that suggested an evolutionary connection between the two groups. Over the years, paleontological discoveries have provided fossilized evidence that has solidified the belief that birds and reptiles share common origins. In particular, the discovery of archaeopteryx, the oldest fossil universally accepted to be a bird, provided important clues about the evolution of birds. This skeleton, with both distinct avian and reptilian features, was considered by many to represent the missing link between modern birds and ancient reptiles, specifically dinosaurs. However, in the absence of conclusive proof, two opposing theories have developed to explain the reptilian origins of birds.

The theropod dinosaur hypothesis contends that birds evolved from dinosaurs around 130 million years ago. Its rival theory, the basal archosaur hypothesis, suggests that birds evolved far earlier — 230 million years ago, from a pre-dinosaur reptile. The ancient reptile that birds — along with crocodiles and dinosaurs — are believed to have evolved from is called an archosaur.

After the discovery of an entire archaeopteryx skeleton in 1861, many researchers were fascinated by the combination of reptilian and avian characteristics in a single specimen. Archaeopteryx had feathers, a markedly avian attribute, yet it also retained reptilian teeth and jaws that are absent in modern birds. For several decades, evolutionary biologists, inspired by the archaeopteryx specimen, focused on the similarities between birds and theropods - a group of bipedal dinosaurs. The theropod dinosaur hypothesis remained the dominant theory for some time, but it eventually fell out of favor in the early twentieth century when Gerhard Hellmann published an influential argument suggesting that birds did not evolve from dinosaurs; rather, both birds and dinosaurs evolved from a common ancestor — this was the basal archosaur hypothesis.

For fifty years, Hellmann's theory remained popular, but it was eventually replaced by the theropod dinosaur hypothesis, revitalized by John Ostrom's research on small theropods. Through his studies, Ostrom revealed compelling similarities between birds and theropods, and soon others were contributing research that bolstered support for the theropod dinosaur hypothesis. Analyzing the similarities between birds and theropods,

evolutionary biologists called attention to the many avian characteristics in theropod dinosaurs, including their bipedal stance, their backward-oriented pelvis, their hollow bones, their three-fingered hands, and their three-toed feet.

Although the theropod dinosaur hypothesis is currently the favored theory, supporters of the basal archosaur hypothesis continue to present very important arguments that call into question some of the assumptions contained in the theropod dinosaur hypothesis. A significant point of contention is the origin of flight.

Because the theropod dinosaur hypothesis proposes that birds evolved from land-dwelling, two-legged dinosaurs, supporters of this hypothesis presume that flight in birds originated "from the ground up" — that is, by feathered pre-bird dinosaurs that evolved flight by running and leaping into the air. The basal archosaur hypothesis conceives of the origins of flight differently. In this hypothesis, early bird-like creatures, which had been evolving from ancient reptiles for millions of years, were already adapted to live in trees. Therefore, supporters of this hypothesis assume that flight originated "from the trees down." According to this theory, scales evolved into feathers to promote gliding and, later, flight.

In the basal archosaur hypothesis, the trees-down theory of flight adequately explains how modern feathers evolved — they were scales that gradually modified to assist the gliding activities of tree-dwelling creatures. Supporters of the basal archosaur hypothesis have criticized the ground-up theory of flight because it does not clarify why ground-dwelling dinosaurs, would have originally evolved leathers, which are perfectly suited for flight and little else.

Advocates of the theropod dinosaur theory have responded by suggesting that pre-bird dinosaurs initially evolved feathers for insulation. However, that explanation fails to prove why feathers evolved instead of fur, which would have been a more effective insulator. Proponents of the basal archosaur theory remain unconvinced. Unfortunately, the lack of fossil evidence means that the true origin of birds is likely to remain a mystery for some time. For the time being, both the theropod dinosaur hypothesis and the basal archosaur hypothesis can be considered to have valid claims about the evolution of