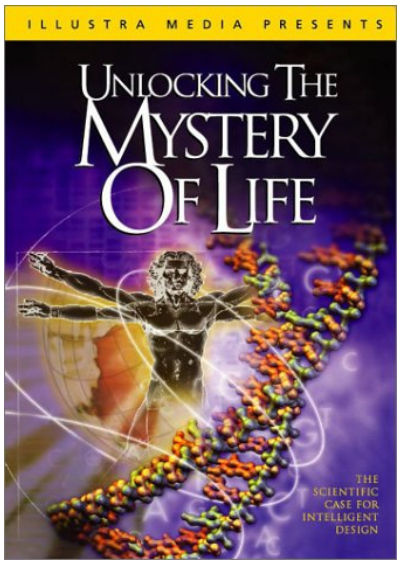
Unlocking the Mystery of Life: The Case for Intelligent Design

Few issues within science have proved more controversial than the question of our origin. How did life originate? Two causes have been found to be responsible for essentially every effect science has observed: ***natural law*** (undirected natural forces including *chance*) and/or the act of an ***intelligent agent***. Which, then, does the evidence most convincingly point towards?

THE RESOURCE:

'Unlocking the Mystery of Life' is a 60-minute Audio-Visual presentation, taking viewers on a fascinating journey to the interior of a single living cell – an elaborate microscopic world bearing the hallmarks of intelligent engineering. Featuring state-of-the-art computer animation and insight from expert scientists and scholars, this compelling presentation examines an idea with the power to revolutionize our understanding of life … and to unlock the mystery of its origin.



'Unlocking the Mystery of Life' is *not* religious. It *is*, however, a genuine scientific challenge to the traditional academic view that purely natural, evolutionary processes are capable of explaining the increase of biological complexity across time. Criticism and open dialogue based on reputable research and scholarship have historically always played an integral role to the refinement of scientific theories, serving to discard the bad and hone the good. Additionally, the process of arriving at scientific *truth* is rarely without disagreement. As such, this resource commends itself as a tool to engage students in the *real process* of science with *complex reasoning* necessary in forming their own educated opinion, in the belief that this will not only sharpen their skills and make the study of science more interesting, but also aware that fact can only be distinguished from fiction under the light of insightful scrutiny.

THE OPPORTUNITY:

This resource is ideal for use within ***senior high school social sciences, religion, philosophy and science classes***, to promote ***critical thinking*** and ***complex reasoning*** in students. Use of this resource, and/or the associated ***discussion guide***, is encouraged *in conjunction with* teaching of the General Theory of Evolution (GTE) It allows students to *engage* not merely with content, but the nature and process of science itself. Used well, this resource challenges each individual to:

- Form an educated opinion based on the evidence;
- Grapple with competing contentions all espoused by well-respected and credentialed scientists;
- Verbally represent their perspective in dialogue with peers.

Additionally, *'Unlocking the Mystery of Life'* could form the basis of a comprehensive and ***inter-disciplinary unit*** considering aspects such as:

- The nature of science (definitions and process);
- The history of science (enlightenment, and the process of refining/changing hypotheses);
- The philosophy of science (logic, materialism and naturalism, inference to design);
- The types and application of science (operational vs. historical, such as forensics);

- The forefront of science (use of research to validate or disprove competing hypotheses).

Additionally, this resource and associated discussion guide assist you to teach and assess ***seven key competencies*** in a contemporary context, addressing:

- *Collecting, analysing and organising information* (research and categorisation of evidence in analysing the case for both Intelligent Design (ID) and GTE);
- *Communicating ideas and information* (representing their findings and opinions both orally and in written form, with scientific substantiation);
- *Working with others and in teams* (assigning areas of responsibility for research, together making a cogent argument to support a position scientifically);
- *Using mathematical ideas and techniques* (application of statistics in assessing the likelihood of various molecular arrangements forming by chance e.g. DNA and chirality);
- *Solving problems* (seeking to clearly understand and represent both the ID and GTE position, evaluating evidence for both theories, recommending directions for future research to come to a resolution);
- Using technology (application of high-resolution electron microscopy to understand biochemical processes at the molecular level such as DNA transcription).

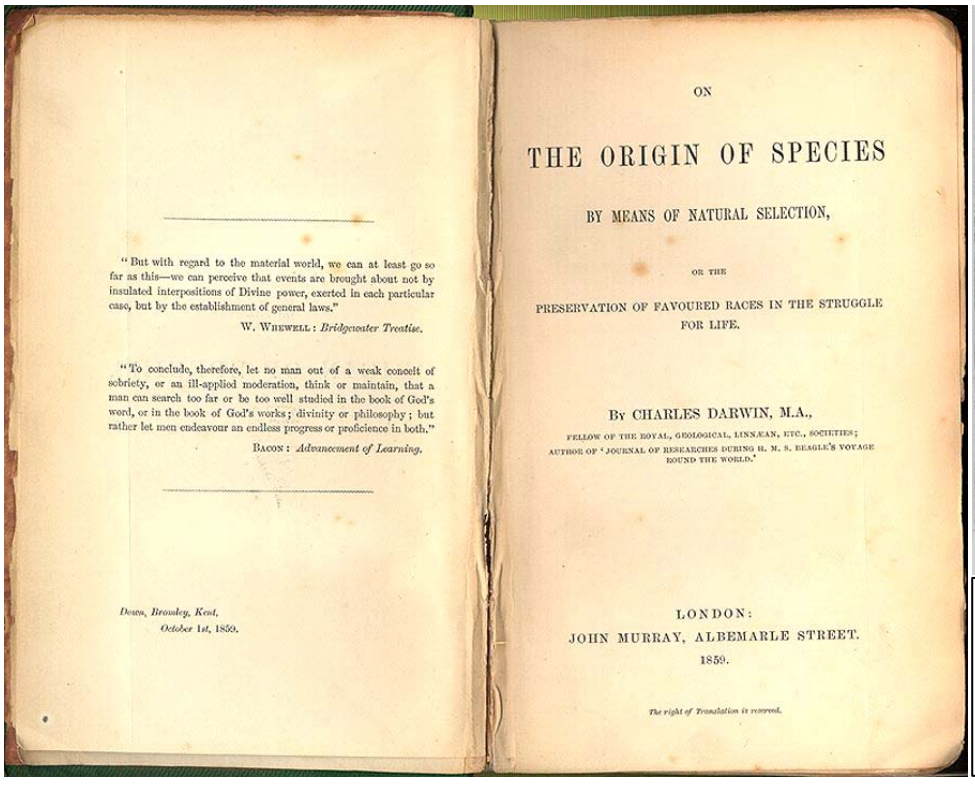
Additionally, this resource could be used within the following ***senior science subjects****:*

- CHEMISTRY: *'Oxidation and Reduction*' (considering strengths and weaknesses of competing models both oxidative and reductive re: the early earth atmosphere and chemical evolution); *'Organic Chemistry'* (molecular analysis of organic machines such as flagellum, or the use of DNA as an information carrying organic system);
- PHYSICS: *'Thermal Physics'/'Energy'* (considering implications and expression of the first and second law of thermodynamics within organic systems, relating to the development and complexity of life);
- EARTH SCIENCE: *'Our earth in space and time'* (using the resource as a lead in to the GTE and interdisciplinary scientific approach, assessing competing theories and the validity of uniformitarianism in light of the potential involvement of a designing agent);
- MULTI-STRAND SCIENCE: *'Forensic Science Elective Unit'* (considering how science is used within forensics, and other fields such as ID, in distinguishing a causal agent as either natural law or design).

THE HISTORY (putting it all in context):

Historically, humankind has considered the existence of nature as the outcome of a higher power and intelligence of sorts. With the enlightenment, however, a supernatural view of the world was supplanted by rationality built upon the dual philosophical foundations of *materialism* and *naturalism*. *Materialism* is the presupposition that matter is *all* that exists (i.e. to be *real*, a thing must be *measurable* by scientific process). *Naturalism* is the presupposition that natural processes *only* may be appealed to in any explanation of nature (i.e. that natural law both defines and solely determines the operation of the natural world). *Evolution*, largely formularised by Charles Darwin, came to represent scientific consensus as the best explanation for the origin of natural diversity on earth, beginning with his landmark publication "On the Origin of Species" in 1859. Presently, *Biological Evolution* (the contention that the mechanism of time + natural selection + mutation, is sufficient to generate increasing biological diversity/complexity over time) fits as part of the *GTE* (General Theory of Evolution), a completely naturalistic framework explaining how all that exists came to be, involving all strands of science including astronomy/physics/cosmology ('Big Bang' bringing matter into existence 13.7 billion years ago), chemistry ('Chemical Evolution' where life formed from non-life), and geology ('Uniformitarianism' explaining the gradual deposition of rock layers).

More recently, however, a collection of scientists under the banner of *Intelligent Design* have contended that " … intelligent causes are necessary to explain the complex, information-rich structures of biology and that these causes are empirically detectable." (from 'Intelligent Design' by William Dembski, 1996, p106). Thus, in essence they are asserting not only is Biological Evolution *incapable* of explaining the complexity of nature (increasingly known with advances in technology such as genome sequencing and electron microscopy), but that the apparent design within nature is *best* explained not by natural law with its undirected natural forces, but by inference to a designer, which *can* be determined by science (as we already see employed within forensic science, archaeology, and SETI, the Search for Extra Terrestrial Intelligence). ID is a relatively new field of science, and is primarily composed of biochemists (assessing the molecular requirements and processes to form functional organic systems), mathematicians (studying the probability of these structures forming by *chance*, also formulating equations to recognise and quantify *information*), and philosophers (studying the nature and application of science itself, within an historical context).



"But with regard to the material world, we can at least go so far as this—we can perceive that events are brought about not by insulated interpositions of Divine power, exerted in each particular case, but by the establishment of general laws."

W. Whewell: *Bridgewater Treatise.*

"To conclude, therefore, let no man out of a weak conceit of sobriety, or an ill-applied moderation, think or maintain, that a man can search too far or be too well studied in the book of God's word, or in the book of God's works; divinity or philosophy; but rather let men endeavour an endless progress or proficience in both."

Bacon: *Advancement of Learning.*

Down, Bromley, Kent,
October 1st, 1859.

ON

THE ORIGIN OF SPECIES

BY MEANS OF NATURAL SELECTION,

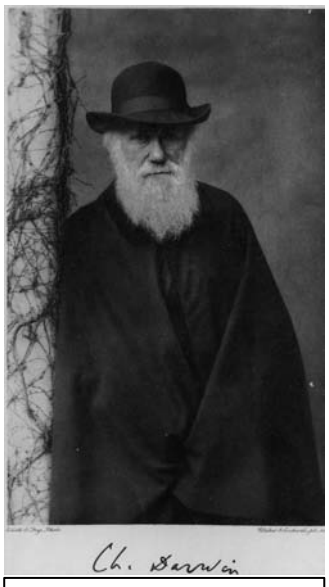
OR THE

PRESERVATION OF FAVOURED RACES IN THE STRUGGLE FOR LIFE.

By CHARLES DARWIN, M.A.,

FELLOW OF THE ROYAL, GEOLOGICAL, LINNÆAN, ETC., SOCIETIES; AUTHOR OF 'JOURNAL OF RESEARCHES DURING H. M. S. BEAGLE'S VOYAGE ROUND THE WORLD.'

LONDON:
JOHN MURRAY, ALBEMARLE STREET.
1859.



Pictured:
Charles Darwin
(accessed from
http://pages.britishlibrary.net/charles.darwin3/images.html)

STUDENT DISCUSSION GUIDE …

Unlocking the Mystery of Life: The Case for Intelligent Design

Prior to watching the Resource … (record your thoughts, then discuss them as a class)

◎ 1> How do you, personally, think life originated? Why?

◎ 2 > Two causative agents lie behind every event: natural process (laws) and/or design (i.e. choice expressed by intelligence). Using science, how could you distinguish which cause was most likely behind a given event?

◎ 3 > Is it valid in *science* to *infer* that a designer is behind the intricacy of nature? Why, or why not?

◎ 4 > What *is 'science'*, and what steps are involved in the *'scientific process'*? Considering this definition, is 'intelligent design' (ID) *true science?*

◎ 5 > Using this same definition of science (prior question), how do the *'Big Bang'* (matter itself coming into existence 13.7 billion years ago) and *'Chemical Evolution'* (life forming from non-life) compare? Is either theory provable and/or falsifiable?

◎ 6 > Compare and contrast 'operational' with 'historical' science. Name two discoveries or fields of science that primarily utilise one or the other type of science.

◎ 7 > Do we need to know the nature of a designer to infer that intelligence was behind the design itself? Consider the example below of Mt. Rushmore in the U.S.A. Give further examples to substantiate your point. How does this, then, relate to nature?

◎ 8 > Why has this issue attracted so much attention and argument? What does it ultimately matter whether we evolved by purely natural processes, or are the consequence of a creative intelligence?

During watching the Resource … (jot notes in response to the following questions)

◎ 9 > While watching the Resource, make notes on the following:

a. One thing that surprised you
b. One thing you disagreed with
c. One thing you didn't understand
d. One thing you'd like to research further

◎ 10 > What led a number of scientists to become disenchanted with more traditional naturalistic explanations of our origins?

◎ 11 > What is *'irreducible complexity'*? Explain with the use of a man-made system *other* than a mousetrap.

◎ 12 > How does *irreducible complexity* apply to biological machines, and why does it challenge traditional understanding of Biological Evolution (refer to *advantageous functional intermediates*)? Is *co-option* a sufficient explanation?

◎ 13 > *Chemical Evolution* is the idea that a primitive cell emerged from simple chemicals in the primordial waters of the early earth. How have Dean Kenyon's ideas changed over time, and why did he reject *natural selection, chance* and *self-organisation* as behind *chemical evolution*?

◎ 14 > What hurdles would need to be overcome for life to form from non-life? What are the requirements for simple life?

◎ 15 > Is ID simply appealing to the weaknesses of evolutionary theory, or is it positing positive evidence that a designer is behind nature? Can science be used to *detect* design? Explain your answer with examples.

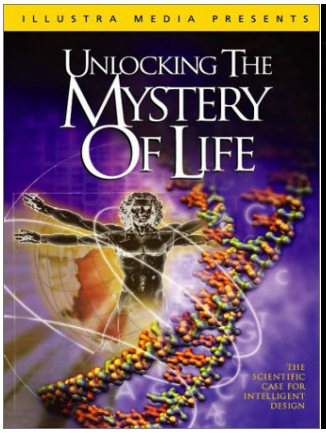
◎ 16 > What is meant by the term *'specified complexity'*. Give an example of each component (i.e. specification, and small probability, together equating to *information*), both man-made and natural.

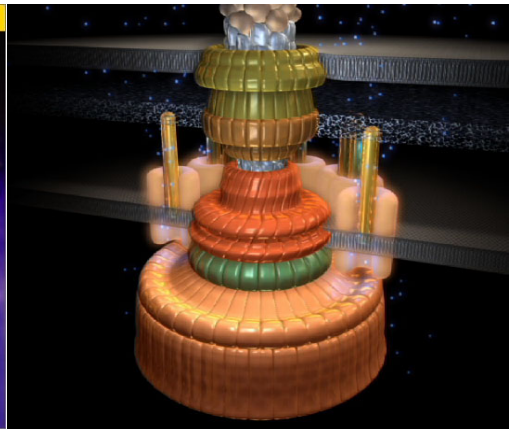
◎ 17 > How is computer software analogous to DNA's information carrying capacity? Is this a valid comparison? Why, or why not? How is the design inference used within archaeology, forensic science and SETI (Search for Extra Terrestrial Intelligence)?

◎ 18 > What approach to the evidence is taken by ID advocates? Outline in schematic form their logic. What are their primary arguments? Are they completely dismissing the Darwinian mechanism?

◎ 19 > What do ID proponents see as the primary shortcomings of the traditional evolutionary explanation behind nature?

◎ 20 > *"A healthy science is a science that seeks the truth and lets the evidence speak for itself."* How have *methodological naturalism* and *materialism* as underlying philosophies, *limited* our study of the evidence for the origin of life? Is ID *good science?* Why might the design inference actually spur on research?





Pictured:
A schematic diagram of the Bacterial flagellar motor

After watching the Resource …

◎ 21 > What do you find most, and least, convincing about ID as a theory?

◎ 22 > What do you find most, and least, convincing about Biological Evolution as a theory?

◎ 23 > Presently, Biological Evolution asserts that *time* + *natural selection* + *mutation* is capable of accounting for the *apparent design* and *information* observed within nature, increasing (on average) in complexity across time from simple to intricate organisms. How would an ID proponent critique this assertion?

◎ 24 > What discoveries led ID proponents to infer a designer as behind nature (particularly regarding cells and molecular machines)?

◎ 25 > Charles Darwin in *Origin of the Species (1859)* said this: "If it could be demonstrated that *any* complex organ existed which could not possibly have been formed by numerous successive, slight modifications, my theory would absolutely break down." Do you feel Michael Behe and his colleagues (author of "Dawin's Black Box") have sufficiently demonstrated this lack of 'finely graded steps' through molecular machines such as the bacterial flagellum? Illustrate your answer with examples.

◎ 26 > Is it possible to quantify information content within a natural system? How?

◎ 27 > Do you believe *specified complexity* is a valid criterion to establish that a system has been designed? Is there a *particular level/amount* of *information content* within a system that you would consider *sufficient* to infer a designer as opposed to natural law/chance? Explain using a continuum.

◎ 28 > In response to question 9d, continue your research and report back to the class. Sites such as www.arn.org, www.iscid.org, and www.discovery.org may be of use. Additionally, you may want to access and critique articles/books by ID proponents such as Michael Denton, Dean Kenyon, Michael Behe, William Dembski, Phillip Johnson, Paul Nelson, Jonathan Wells and Stephen Meyer.

◎ 29 > Following your research, as a class engage in a debate where each member is *assigned* to either represent scientists advocating for ID, or scientists advocating for GTE (General Theory of Evolution). Your teacher will play the role of moderator. *Or* … You are to write a 200 word persuasive scientific piece as a science magazine editorial on the issue of origins, advocating for whichever theory (ID or GTE) you are assigned. Present your article to the class for discussion and fielding of questions.

◎ 30 > To conclude this activity/unit, outline what you see as the strengths, weaknesses, and directions for further research of each major theory attempting to explain the origin of life in the unobservable past.