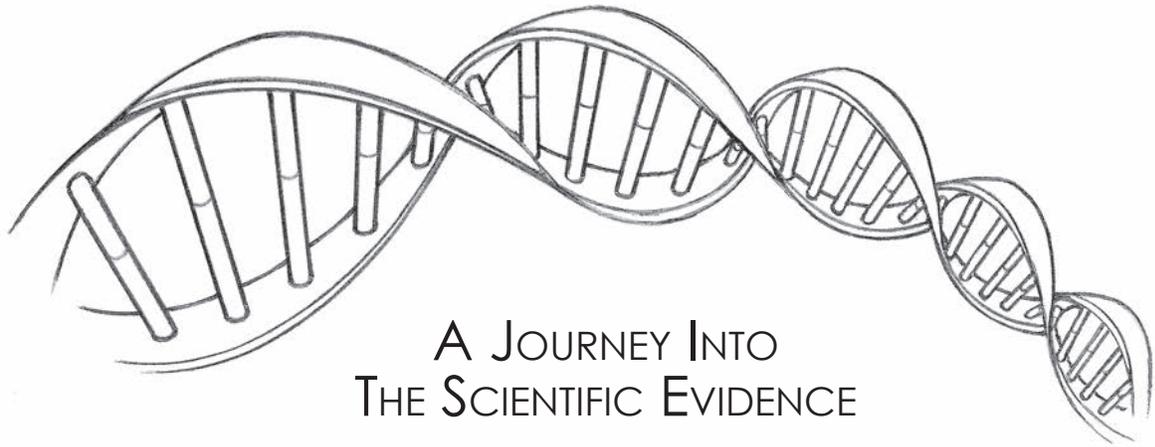


# DISCOVERING INTELLIGENT DESIGN



A JOURNEY INTO  
THE SCIENTIFIC EVIDENCE

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DISCOVERY INSTITUTE PRESS, SEATTLE, WA

## **Description**

The *Discovering Intelligent Design* textbook is part of a comprehensive curriculum that presents both the biological and cosmological evidence in support of the scientific theory of intelligent design. Developed for middle-school-age students to adults, the curriculum also includes a workbook with learning activities and a DVD with video clips keyed to the content of the textbook. Produced by Discovery Institute in conjunction with Illustra Media, the curriculum is intended for use by homeschools and private schools. The curriculum is divided into six modules that explore topics such as the origin and development of the universe, the origin of biological complexity, the fossil record's evidence (or lack thereof) for universal common descent, and the broader cultural debate over intelligent design. More information can be obtained by visiting the curriculum's website, <http://discoveringid.org>.

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## **Library Cataloging Data**

*Discovering Intelligent Design: A Journey into the Scientific Evidence* by Gary Kemper, Hallie Kemper, and Casey Luskin

290 pages, 8.5 x 11x 0.6 inches or 280 x 216 x 15 mm, 1.5 lbs or 680 g.

Library of Congress Control Number: 2013934288

BISAC: SCI015000 SCIENCE/Cosmology

BISAC: SCI027000 SCIENCE/Life Sciences/Evolution

BISAC: SCI034000 SCIENCE/History

BISAC: SCI075000 SCIENCE/Philosophy & Social Aspects

ISBN-13: 978-1-936599-08-0

ISBN-10: 1936599082

## **Publisher Information**

Discovery Institute Press, 208 Columbia Street, Seattle, WA 98104

<http://www.discoveryinstitutepress.com>

Published in the United States of America on acid-free paper.

First Edition, First Printing, May 2013.

# CHAPTER 1

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## DESIGN DECODED



***Question:***

*What have you  
already heard about  
intelligent design?*

# DESIGN DECODED

*"We must follow the argument wherever it leads."*

— Socrates<sup>1</sup>

Since the dawn of human history, people have looked up at the night sky and wondered how the cosmos came to be.



Turning our eyes toward earthly matters, we've pondered questions like:

- How did the first life arise?
- How did intricate abilities like sight and hearing develop?
- Where did our own species come from?
- Does the complexity of life and the universe point to unguided causes or intelligent design?

*Discovering Intelligent Design (DID)* examines modern scientific evidence to answer such fundamental questions.

## INTELLIGENT DESIGN

The theory of **intelligent design** (ID) studies indications of design in nature.

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### > Intelligent Design:

*A scientific theory that holds that many features of the universe and life are best explained by an intelligent cause.*

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ID scientists seek to distinguish between intelligently-caused objects and events, and those which originated via unguided processes.

Consider an object that everyone knows is designed—a car. Car parts were originally in the form of their raw materials, such as metal ore and petroleum. Obviously, unguided causes alone will never organize these materials into a car. Something else is needed.

Changing the metal ore into an engine block requires machines that were built by intelligence. Likewise, converting petroleum into fuel, plastic parts, or synthetic tires requires intelligent intervention.

Shaping these materials into parts and then assembling them into a car requires an immense amount of intelligent guidance, a process that generates information. In fact, the presence of information is the primary feature distinguishing objects produced by unguided processes from those produced by intelligent design.

Experience shows that many elements of our everyday lives—such as language, codes, and

machines—depend upon information produced by intelligent agents.

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> **Intelligent Agent:**

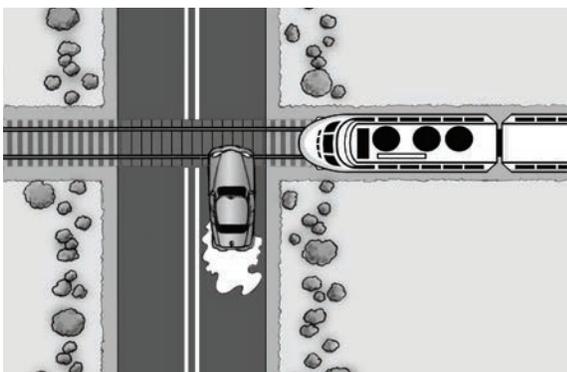
*A being with the ability to plan ahead and think with an end-goal in mind.*

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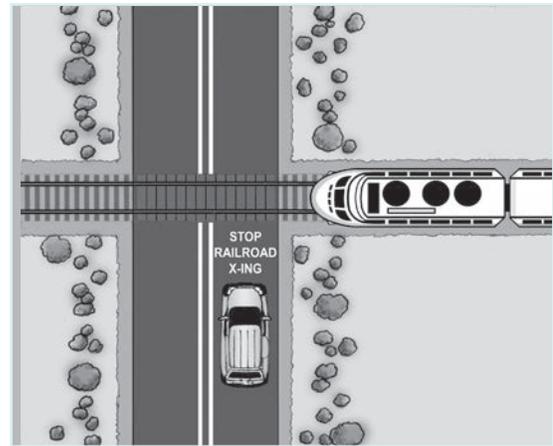
Blind and unguided natural processes cannot think ahead to see what is necessary to build a car. Intelligent agents are different. They can use foresight to design a blueprint, collect the proper materials, construct the necessary tools and machinery, and then process and assemble everything in the right order.

ID theorists start by studying the type of information that is created by intelligent agents. Next, they examine natural objects to see if those objects contain such information. When such information is found, it leads to the inference that an intelligent cause was at work in the origin of that object.

We use ID reasoning in our everyday lives. Imagine you are driving along a road and come to a place where the asphalt is covered by a random splatter of paint. You would probably ignore the paint and keep driving onward.



But what if the paint is arranged in the form of a warning? In this case, you would probably make a design inference that could save your life. You would recognize that an intelligent agent is trying to communicate an important message.



Only an intelligent agent can use foresight to accomplish an end-goal—such as building a car or using written words to convey a message. Recognizing this unique ability of intelligent agents allows scientists in many fields to detect design.

- Archaeologists discriminate between rock formations that have been shaped by natural geological forces and those shaped by intelligence—such as walls, roads, or aqueducts.
- Forensic scientists distinguish between naturally caused deaths, and intelligently caused deaths, such as *murder*. These are important questions that our legal system must answer with great accuracy.
- Environmental scientists seek to determine whether environmental problems result from natural causes or human action. Finding dead fish in a river, scientists might determine that a nearby chemical plant is responsible, rather than a disease.

Following such logic, design theorists ask a simple question: If we can detect design in other scientific fields, why should it be controversial when we detect it in biology or cosmology?

## THE SCIENTIFIC BASIS OF ID

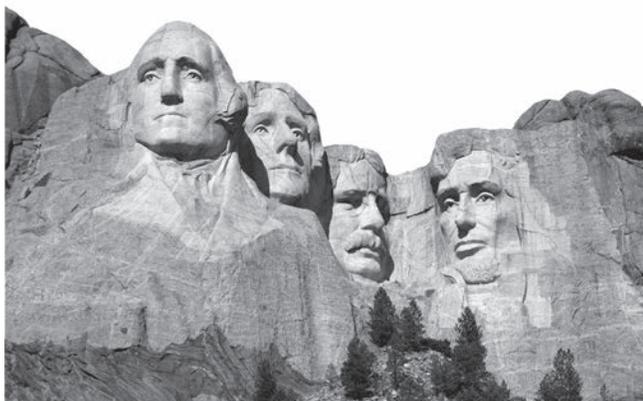
Imagine you are a tourist visiting the mountains of North America. You first come across this mountain:



There are features of this mountain that differentiate it from any other mountain on Earth. In fact, if all possible combinations of rocks, peaks, ridges, gullies, cracks, and crags are considered, this exact shape is extremely unlikely.

Nonetheless, there is nothing special about this mountain that would lead to the conclusion it was carved by human hands. Its shape can easily be explained by the natural geological processes of uplift and erosion. Unlikelihood alone is not enough to infer design.

Then, you come across this mountain:



What's different about this mountain? It too has a very unlikely shape—but that shape matches a well-known pattern: the heads of four U.S. presidents.

Observing it, you realize:

- Information was used in shaping it. The artist knew how to shape rock, and he knew the facial patterns of those four presidents.
- The sculpted images also present information to observers—four recognizable faces.

You conclude that this mountain was shaped by an intelligent agent. Why?

As noted, ID begins with observations about what happens when intelligent agents act. Design theorists have observed that intelligent agents are uniquely able to produce high levels of **specified complexity**.<sup>2</sup>

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### > Specified Complexity:

*An event, object, or sequence of information that is unlikely and matches an independent pattern.*

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In the context of science and information theory, something is *complex* if it is unlikely. It is *specified* if it matches an independent pattern. The information inherent in such an object is called **complex and specified information**, or “CSI.” From experience, we recognize that finding complexity and specification together is a hallmark indicator of design.

Figure 1-1 on the next page shows the difference between complexity and specification, and how they work together to indicate design.

Let's consider a few real-world examples.

If a structure is readily created by natural laws, then it will not be both complex and specified. For example, a crystal has a repeating pattern of atoms

Complex but Not Specified	Specified but Not Complex	Both Complex and Specified
<p>...ahplylrrerhtuavitof daehnma erliaolrgkn larnwcoari kfiv g reebtsi luhisaatt bddlesncm ukle hrdoel oeznigbs...</p> <p><b>Explanation:</b> The exact ordering of the letters of this text is unlikely, making it complex. However, it was typed as random gibberish, meaning it matches no independent pattern, and is not specified. This text was not designed.</p>	<p>...1212121212121221212121212 121212121212121212121212121 212121212121212121212121212 121212121212121212121212121 21212121212121212...</p> <p><b>Explanation:</b> This text matches a simple, repeating pattern, making it specified. However, its precise ordering is easy to predict, meaning it is not complex. Design cannot be inferred.</p>	<p>...all men are created equal, that they are endowed by their Creator with certain unalienable Rights...</p> <p><b>Explanation:</b> The precise ordering of these letters is not just unlikely, but it also matches a known pattern—the English language. Intelligent design is evident in the ordering of these letters.</p>

Figure 1-1: Complexity and Specification.

which makes it specified, but since these patterns are ordered by simple natural laws, they aren't complex. Conversely, a random mixture of organic polymers might be very complex, but would lack specificity since it does not conform to any pattern.

Living organisms, on the other hand, are both complex and specified. They are complex because their structures are highly unlikely, and are specified since their structures are specially suited to perform biological processes.

How does such specified complexity arise? We will explore potential answers to that question throughout this book, but a clear possibility was mentioned previously: intelligent agents. They can think with an “end goal” in mind—resulting in solutions that are specified and complex. ID theorist Stephen Meyer explains that language, machines, and computer codes are prime examples of designed objects with large quantities of CSI:

Our experience-based knowledge of information-flow confirms that systems with large amounts of specified complexity (especially codes and languages) invariably originate from

an intelligent source—from a mind or personal agent.<sup>3</sup>

As this book will show, specified complexity—an indicator of design—is found throughout nature, from the constants and laws of the universe down to tiny molecular machines inside the cell.

Not everyone, however, accepts that ID provides a valid scientific explanation.

### PLAYING THE RELIGION CARD

Despite the scientific utility of ID, its critics have worked overtime to convince the public and the courts that ID is a stealth form of “creationism.” But is that claim true?

There are many definitions of **creationism**, but in our culture, the common understanding is as follows:

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> **Creationism:**

*The belief that the universe and life were created by God as described in the book of Genesis in the Bible.*

---

Some creationists accept the mainstream scientific view that the Earth and the universe are billions of years old. In contrast, “**young earth**” **creationists** believe that the Earth and universe are on the order of six to ten thousand years old. What all creationists have in common is that they start with religious texts like the Bible and end with religious conclusions.

Intelligent design is different from creationism because it begins with our observations of nature rather than the Bible, and it limits its scientific claims to what can be learned from the scientific method. As a science, ID refers only to an intelligent cause and does not attempt to identify whether or not the source of intelligence is God.

It’s not that asking about the nature of the designer is unimportant. In fact, many people feel that such questions are very important. However, answers to those questions reach beyond the scope of science, and into philosophy and religion.

Many ID theorists have interests in broader questions such as making a case for design from philosophy or theology. All ID theorists agree, however, that an argument for design can be made using the scientific evidence alone. This book explores only the scientific case for intelligent design.

## NATURAL AND SUPERNATURAL

Beyond the issue of “creationism,” a related question is whether ID requires supernatural intervention. One needs to read no further than Chapter 3 to see why this may be a reasonable question. However, in the debate over ID, those

In this book, we use the term “natural” to describe objects or events which originated by unguided mechanisms or processes. However, in some instances natural laws themselves may show evidence of design. As we will discuss in Chapters 4 and 6, ID proponents often infer design from the fine-tuning of the laws that govern the universe and make it friendly for life.

who raise questions about the supernatural are often attempting to shut down the discussion by refusing to address the evidence.

The bottom line is simply this: All that intelligent design scientifically detects is the prior action of intelligence. It does not venture further, beyond the boundaries of science. There are several reasons for this position.

- Perhaps most importantly, ID scientists want to keep the discussion focused on the evidence.
- When we challenge naturalistic explanations, we don’t necessarily advocate the supernatural. Although mountains are natural objects, the shape of Mount Rushmore did not arise by natural causes. Rather, the intelligent agents who designed and shaped it were humans.
- ID theorists respect the limits of science, and they don’t believe in overstating what can be known from science alone. Science doesn’t answer all questions. For example, the DNA

encoding complex molecular machines may indicate that they arose by intelligent design. But it does not tell us whether the intelligence was God, Buddha, Yoda, or some other type of intelligent agent.

This book explores many reasons why ID's critics might wish to avoid debating the evidence. But there is an interesting, related question: *Why are so many critics concerned about potential philosophical and even theological implications of ID?*

**MATERIALISM**

In our culture there is a great deal of resistance to the evidence for intelligent design.<sup>4</sup> Much of this resistance comes from those who accept an idea known as **materialism**.

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> **Materialism:**  
*The philosophical belief that the material world is the only reality that exists.*

---

According to this philosophy, the universe and all life are products of long chains of blind, unguided, and chance events. No intelligent design, no designer. Under materialism, everything

is ultimately purposeless.

There are two terms related to materialism that should be defined because they occasionally appear in the debate over ID.

- 
- > **Philosophical Naturalism:**  
*Essentially the same meaning as materialism.*
  - > **Methodological Naturalism:**  
*The belief that, whether or not the supernatural exists, we must pretend that it doesn't when practicing science.*
- 

To clarify the different viewpoints, the chart in Figure 1-2 shows how their proponents would answer two simple questions.

With regard to their scientific claims about origins, methodological naturalism, philosophical naturalism, and materialism are essentially identical. *DID* uses these terms interchangeably, generally using the term “materialism.” Since this book is about scientific investigation, it doesn't examine creationism.

Since so much of the resistance to ID comes from materialists, we will examine that philosophy

Viewpoint	Is there scientific evidence of intelligent design in nature?	What about God?
Creationism	Yes	God created all things.
Materialism / Philosophical Naturalism	No	There is no God.
Methodological Naturalism	No	God is irrelevant.
ID Theory	Yes	ID scientifically infers only an intelligent cause. To determine whether that cause is God would require additional investigation beyond science.

Figure 1-2: Different Viewpoints about Intelligent Design.

## THE SEVEN TENETS OF MATERIALISM

1. Either the universe is infinitely old, or it appeared by chance, without cause.
2. The physical laws and constants of the universe ultimately occurred by purposeless, chance processes.
3. Life originated from **inorganic** material through random, blind processes.
4. The information in life arose by unguided, blind processes.
5. Complex cellular machines and new genetic features developed over time through purposeless, blind processes.
6. All species evolved by unguided natural selection acting upon random mutations.
7. All living organisms are related through universal common ancestry.

Figure 1-3: The Seven Tenets of Materialism.

in detail in the coming chapters. For materialism to be valid, all of the seven **tenets** in Figure 1-3 must be true.

Materialists and naturalists believe that they own science. After many decades of growing influence in academia, they have gained control of public education, the courts, and the mainstream media.

Materialists impose philosophical restrictions upon science which prohibit any reference to intelligent causes. As one evolutionary biologist argued in the world's leading scientific journal, *Nature*:

Even if all the data point to an intelligent designer, such a hypothesis is excluded from science because it is not naturalistic.<sup>5</sup>

ID seeks to remove these restrictions because they block scientific advances and hinder the search for truth. A discussion of how ID advances scientific knowledge can be seen in Appendix A.

- Intelligent causes can be studied by science.
- Scientific investigations demonstrate that many aspects of nature are best explained by intelligent design.

We are at an important time in scientific history. In spite of the widespread influence of materialism, many scientists, teachers, and policymakers are raising serious questions about its validity and influence on research and education.

How well do the tenets of materialism stand up to scrutiny? Is intelligent design a superior explanation? As we explore the concept of design, we will attempt to answer those questions. Before examining the evidence, however, the next chapter will briefly explore some history leading to the current controversy.

## CONCLUSION

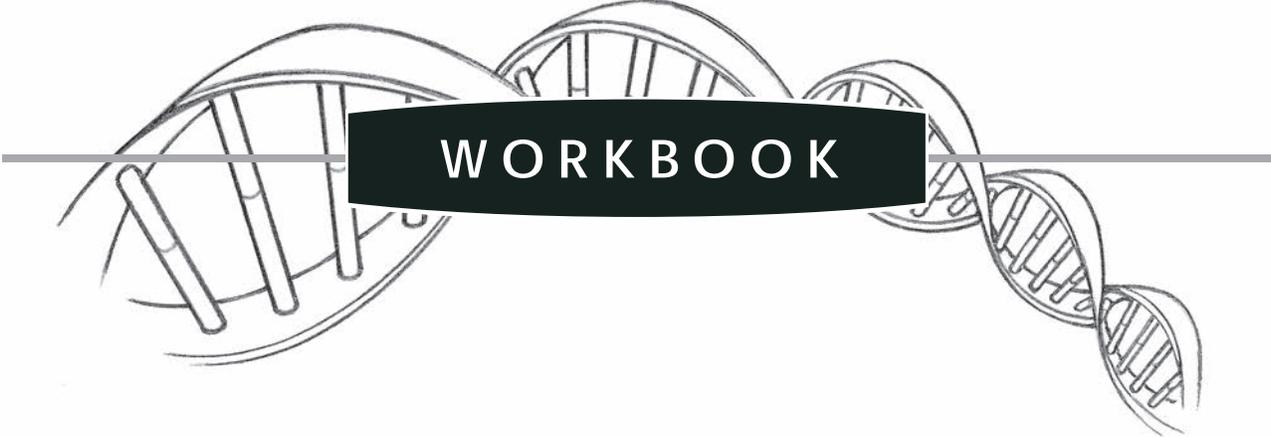
ID challenges materialism by proposing that:



## DISCUSSION QUESTIONS

1. If someone wanted to build a house, would it be better to start building immediately, or first create a blueprint? Why? Discuss your answer.
2. Identify a design inference that you made today. Explain how you made that inference.
3. Look around the room. Describe five things you see that have high CSI, and five things that don't.
4. How is intelligent design different from creationism? Does it have any similarities with creationism? If so, does that logically mean that ID is the same as creationism?
5. Materialists would have you believe that the theory of intelligent design is unscientific. Do you agree? Why or why not? What might change your mind one way or the other?
6. Based on this chapter, do you think it is reasonable to have doubts about the philosophy of materialism? Explain your answer.
7. Look at the seven "Tenets of Materialism," and discuss a few of them. Which one do you think is most likely to be valid? Which one might be most difficult to validate? Why?

# DISCOVERING INTELLIGENT DESIGN



WORKBOOK

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# CHAPTER 1

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## DESIGN DECODED

## CHAPTER 1: DEFINING MOMENT

1. \_\_\_\_\_ is the scientific theory that studies indications of design in nature.

2. Should the evidence for design in nature be controversial? Explain your answer:

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3. Materialism is the philosophical belief that:

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4. Define methodological naturalism:

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5. Name two things that blind and unguided natural processes cannot do:

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6. How do ID theorists detect indications of design in nature?

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7. How is intelligent design different from creationism?

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8. In the context of science and information theory, what does it mean to say something is complex?

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9. What does it mean to say something is specified?

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10. When complex and specified information (CSI) is observed in nature, what can be inferred as its cause?

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11. For each of the items below, indicate yes or no.

Item	Complex	Specified
Salt Crystal		
Your hair when you wake up in the morning		
Morse code		
Ripples on Seashore		
Arrangement of garbage at the dump		
The pattern of ink on today's newspaper		

Fill in the blanks below with words from the box.

creationism	materialism
CSI	philosophy
intelligent agent	Socrates
intelligent design	tenet

12. \_\_\_\_\_ A being with the ability to plan ahead and think with an end-goal in mind.
13. \_\_\_\_\_ A principle held in common by members of a group.
14. \_\_\_\_\_ Some features of the universe and life are best explained by an intelligent cause.
15. \_\_\_\_\_ The belief that the material world is all that exists.
16. \_\_\_\_\_ Philosopher who urged us to "follow the argument wherever it leads."
17. \_\_\_\_\_ The belief that the universe and life were created by the God of the Bible.
18. \_\_\_\_\_ A set of beliefs about the nature of the world, and how one ought to live life.
19. \_\_\_\_\_ Complex and specified information, a hallmark of intelligent design.



## ESSAY

Choose two or three tenets of materialism. Based on what you currently know, write your opinion on whether they are valid or invalid and why.

### **INQUIRY ACTIVITY:** *Seeking Specified and Complex Information around the House*

Scientists explain that we can detect design when we find something that is both complex (i.e. unlikely) and specified (i.e. matches an independent pattern). Being just complex (e.g. a random splattering of paint on the wall), or just specified (e.g. the shape of a salt crystal) is not enough to infer design.

- **Materials Needed:** Household items and items from the outdoors.
- **Step 1:** Take five items from your house or classroom, and five items from the outdoors. For each item, explain whether it is complex, specified, or both. Should you infer that the object was designed?
- **Step 2:** Not everything around inside or outdoors may be best explained by intelligent design. For example, can you find something in or near your house that is specified but not complex? Likewise, is there something that is complex, but not specified? Explain whether intelligent design is the best explanation for what you found.