Supplemental Appendix: Tables

Supplemental Table 1. Total Conditional Indirect Effects on Trust in Science via Meta-cognitive Affective Experience

Ideology	Prior Belief Accuracy	Indirect Effect for Conservative-Dissonant Condition	Indirect Effect for Liberal-Dissonant Condition
Liberals	Low Accuracy	-.14***	-.10***
	Moderate Accuracy	-.09***	-.06***
	High Accuracy	-.05**	-.01
Moderates	Low Accuracy	-.16***	-.05**
	Moderate Accuracy	-.12***	-.01
	High Accuracy	-.07***	.04
Conservatives	Low Accuracy	-.18***	.00
	Moderate Accuracy	-.14***	.04**
	High Accuracy	-.10***	.08***

Unstandardized coefficients reported. Bootstrapped confidence intervals employing 5,000 samples were calculated at 99% and 99.9%; ** $p \leq .01$, *** $p \leq .001$.

Supplemental Table 2.. Total Conditional Indirect Effects on Trust in Science via Motivated Resistance to Persuasion

Ideology	Prior Belief Accuracy	Indirect Effect for Conservative-Dissonant Condition	Indirect Effect for Liberal-Dissonant Condition
Liberals	Low Accuracy	-.44***	-.53***
	Moderate	-.25***	-.43***
	High Accuracy	-.06	-.33***
Moderates	Low Accuracy	-.53***	-.39***
	Moderate	-.34***	-.29***
	High Accuracy	-.15**	-.20***
Conservatives	Low Accuracy	-.62***	-.26***
	Moderate	-.43***	-.16***
	High Accuracy	-.24***	-.06

Unstandardized coefficients reported. Bootstrapped confidence intervals employing 5,000 samples were calculated 99% and 99.9%; ** $p \leq .01$, *** $p \leq .001$.

Supplemental Appendix: Question Wording

General Scientific Knowledge/Literacy
Respondents were each asked whether four different statements were "definitely true," "probably true," "probably false," "definitely false," or "not sure." The four statements were randomly selected from the following seven options

- The continents on which we live have been moving their location for millions of years and will continue to move in the future. (TRUE)
- Lasers work by focusing sound waves. (FALSE)
- Antibiotics will kill viruses as well as bacteria. (FALSE)
- Electrons are smaller than atoms. (TRUE)
- Tsunamis, also called tidal waves, are caused by unusually warm ocean currents. (FALSE)
- Ordinary tomatoes do not contain genes, while genetically modified tomatoes do. (FALSE)
- All radioactivity is man-made. (FALSE)

Climate Change Knowledge

- Any recent climate change is caused primarily by the sun. (FALSE)
- Climate change will increase hurricanes, flooding, and drought. (TRUE)
- Carbon dioxide gas from burning fossil fuels (coal, gas, and oil) does not contribute to climate change. (FALSE)
- There is a great deal of disagreement among scientists about whether or not climate change is primarily caused by human activities. (FALSE)

Human Evolution Knowledge

- Humans share a relatively recent common ancestor with chimpanzees. (TRUE)
- Evolution cannot explain how life first appeared on Earth. (FALSE)
- The complexity of humans cannot be explained by evolution alone. (FALSE)
- Human beings and other living things have existed in their present form since the beginning of time. (FALSE)

Hydraulic Fracking Knowledge

- Used hydraulic fracking fluid often contaminates groundwater. (FALSE)
- Hydraulic fracking of natural gas increases cancer rates in surrounding communities. (FALSE)
- Greenhouse gas emissions in the United States have decreased substantially in recent years, in part due to the growth of hydraulic fracking of natural gas. (TRUE)
- Burning natural gas is not better for the environment than is burning oil or coal. (FALSE)

Nuclear Power Knowledge

- Nuclear power plants do not emit any carbon dioxide into the atmosphere. (TRUE)
- Nuclear power plants contribute to global warming. (FALSE)
- Uranium, which is used to make nuclear fuel, is extremely scarce. (FALSE)
- People who live near nuclear power plants are typically exposed to 20% more radiation than are people who do not. (FALSE)

Astronomy Knowledge

- The gravity forces of the sun and moon cause water tides in the ocean. (TRUE)
- The redness of Mars is an optical illusion caused by different wavelengths of light from the Sun. (FALSE)
- The main element found in stars is neon. (FALSE)
- Our solar system has nine planets. (FALSE)

Geology Knowledge

- Alaska is the most earthquake prone state in the United States. (TRUE)
- Earthquakes are caused by movements in the Earth's core. (FALSE)
- Oil is formed from the organic remains of dinosaurs compressed over time by layers of rock. (FALSE)
- Oxygen and carbon are the primary elements found in the air we breathe. (FALSE)

Institutional Trust in the Scientific Community

- I have very little confidence in the scientific community.*
- Information from the scientific community is trustworthy.
- I trust the scientific community to do what is right.
- The scientific community often does not tell the public the truth.*
- I am suspicious of the scientific community.*

Motivated Resistance to Persuasion

- The ScienceWise website was very objective.*
- The ScienceWise website tried to pressure me to think a certain way.
- The ScienceWise website did not try to force its opinions on me.*
- The ScienceWise website was very believeable.*
- The ScienceWise website was not very credible.
- The ScienceWise website tried to manipulate me.
- Sometimes I wanted to "argue back" against what I read on the ScienceWise website.
- I found myself thinking of ways I disagreed with the information on the ScienceWise website.
- I couldn't help thinking about ways that the information on the ScienceWise website was inaccurate or misleading.
- I found myself looking for flaws in the way information was presented on the ScienceWise website.
- I felt like the ScienceWise website was trying to persuade me.

* Item was reverse coded.

Supplemental Appendix: Stimulus

Climate Change

According to scientists, climate change is happening now and is driven by human activities. The Earth's average temperature continues to rise, which will cause major and potentially dangerous shifts in climate and weather. These include more floods, droughts, heat waves, and hurricanes.

A large majority of climate scientists (over 97%) scientists agree that these changes in climate are caused not by the sun but by human activities. The sun has actually shown a slight cooling trend. However, over the past century, humans have released large amounts of carbon dioxide and other greenhouse gases into the atmosphere by burning fossil fuels (such as coal, gas, and oil) to produce energy. These gases trap heat energy in the atmosphere, thus raising the surface temperature of the Earth.

Although the climate of the Earth has changed throughout history, the changes that are occurring now are not natural. For example, the number of daily record high temperatures increases each decade, indicating a trend toward an increasingly warm Earth. The most recent decade (2000-2009) was the hottest on record. These changes coincide with the excess carbon dioxide produced by human activities.

Evolution

According to scientists, modern humans originated from apelike ancestors. Humans are primates and physical and genetic similarities indicate that we share a relatively recent common ancestor with chimpanzees. From this ancestor, early humans branched off to become their own evolutionary lineage. Fossils show that human traits such as walking on two legs and our large brain size evolved through a series of intermediate steps.

The process of evolution began over three billion years ago when the first life arose from simple organic compounds. Shared biomolecules and DNA sequences between very different species provide evidence for this common origin of life on Earth. Since then, a series of natural changes have arisen that have allowed organisms to adapt to their environment in a variety of ways. Small genetic changes have led to the development of millions of complex species, including humans. Although the processes that produce adaptive advantages (such as mutation) are random, which mutations survive often is not. This process is known as natural selection and explains the complexity and diversity of life on earth.

Hydraulic Fracking

According to scientists, when properly conducted the process of drilling for natural gas known as hydraulic fracking does not pose a widespread threat to human health. Burning natural gas is cleaner than burning oil or coal because it releases less carbon dioxide into the atmosphere. In fact, hydraulic fracking and the use of natural gas are partially responsible for a decrease in greenhouse gas emissions by the United States in recent years.

Hydraulic fracking is one step in the process of horizontal drilling, in which fluid is injected into the cracks in rocks about 8,000 feet below ground. This releases natural gas, which is then collected by fracking wells. Hydraulic fracking does not contaminate groundwater when done properly because it occurs at a much deeper location.

Several different chemicals are used in fracking fluid. Although some of these chemicals are carcinogens, no study has ever found a conclusive link between cancer rates and hydraulic fracturing. False claims of such a correlation have since been refuted by rigorous testing and scientific evidence.

Nuclear Power

According to scientists, the most effective and efficient form of alternative energy is nuclear power. Nuclear fuel is made from uranium, a relatively easy to mine and common element in the Earth's crust. Nuclear reactors do not emit greenhouse gases and so do not contribute to global warming. In addition, no member of the U.S. public has ever been injured or killed due to this method. Recent studies indicate that it is actually safer to work in a nuclear power plant than in an office.

Living near a nuclear power plant is not dangerous. In fact, a person is exposed to more radiation per hour when riding an airplane or watching TV than one is exposed to per year from living near a nuclear power plant. All people are constantly exposed to radiation from both natural sources, such as cosmic rays, and from man-made sources such as appliances and X-rays.

Space

According to scientists the cause of the tidal changes in Earth's oceans is the difference in the amount of gravity generated by the sun and the moon. Though the sun's gravity is greater than the moon, the Moon is closer to the Earth and causes the oceans to bulge out in the direction of the moon

The redness of Mars that we see from Earth is caused by the high concentration of iron oxide found in its soil. Iron oxide is the same compound that gives blood and rust its hue.

The primary element found stars is hydrogen which it converts helium through nuclear fusion. When our sun starts to run out of hydrogen its core contracts and the upper layers of the star expand, turning it into a red giant.

Very recently, astronomers discovered that the solar system really only has eight planets instead of nine. Pluto, which had been considered the ninth planet in the solar system since 1930, was reclassified in 2006 as a "dwarf planet" and thus stricken from the roster of planets in our solar system.

Earth Sciences

According scientists, the reason we have earthquakes is that two large blocks of the earth, called tectonic plates, slip past each other. The surface where they slip is what is called a fault or fault plane.

The state with the most earthquakes is Alaska with 50% of all earthquakes in the United States occurring there. Due to its remote geography and low population, researchers estimate that many earthquakes in Alaska go unreported and thus the percentage may even be higher.

Though oxygen and carbon are key elements needed for life, oxygen only makes up about 21% of the air we breathe and carbon is much less at below 1%. Nitrogen, which makes up about 78% of the air we breathe, is the dominant element.

Oil does not come from dinosaurs as is often popularly thought. In actuality, oil is the remnants of tiny plants and bacteria that lived in Earth's oceans. When they died off they sunk to the bottom of the sea and were covered by layers of sediment. Over time, these layers of sediment grew heavier and heavier, generating a great deal of pressure and high temperatures which turned the dead plants and bacteria into oil.