FAQ:
Can we positively say something was designed?

The Short Answer: Essentially, yes, but design is an inference. Yet design is an inference no more and no less than evolution is an inference. Furthermore, few things in science are said with 100% confidence--most scientific claims are at heart, inferences. The design inference works like this: from our understanding of how intelligent agents operate, they tend to produce high levels of complex and specified information (CSI). Thus, when we find this CSI, we have positive evidence of intelligent design. Through this evidence matching known products of intelligent design, we can infer that an object was designed.

The Long Answer:

Detecting design is an inference. The argument behind intelligent design basically goes as follows:

1. We understand the types of information produced by intelligent agents.
2. When we find that sort of information in biology, we are justified in inferring that it was put there by an intelligent agent.
3. Some forms of information produced by intelligent agents cannot be produced by natural processes. When we find these sorts of information we can positively say it were not produced by natural processes, but looks like the sort of information produced by intelligent design. We are thus justified in "inferring" that it was designed.

Intelligent design theorist Stephen C. Meyer also emphasizes many of the positive predictions of intelligent design:

> "Experience teaches that information-rich systems … invariable result from intelligent causes, not naturalistic ones. Yet origin-of-life biology has artificially limited its explanatory search to the naturalistic nodes of causation … chance and necessity. Finding the best explanation, however, requires invoking causes that have the power to produce the effect in question. When it comes to information, we know of only one such cause. For this reason, the biology of the information age now requires a new science of design. (Stephen C. Meyer, *Mere Creation*, pg. 140).

> "Indeed, in all cases where we know the causal origin of 'high information content,' experience has shown that intelligent design played a causal role." (Stephen C. Meyer, DNA and Other Designs at http://www.arn.org/docs/meyer/sm_dnaotherdesigns.htm)

> "Intelligent design provides a sufficient causal explanation for the origin of large amounts of information, since we have considerable experience of intelligent agents generating informational configurations of matter." (Meyer S. C. et. al., "The Cambrian Explosion: Biology's Big Bang," in *Darwinism, Design, and Public Education*, edited by J. A. Campbell and S. C. Meyer (Michigan State University Press, 2003)

Inferences vs. Deductions:

There are essentially two types of valid reasoning: inductive reasoning (inference) and deductive reasoning (deduction). Inferences are made when a person (or machine) goes beyond available evidence to form a conclusion. Deductions are made when one fact necessarily mandates another fact. Deductions are "stronger" forms of reasoning than inferences, however inferences are used constantly in science.

Are inferences inappropriate for science? Definitely not. In science, nothing can be said with 100% confidence, and in fact most scientific claims are based upon inference. "I observe A so I infer

B." Deductive reasoning (i.e. things we reason to be true with 100% confidence) can only be used to disqualify scientific hypotheses, and thus science can only say with 100% confidence that a given hypothesis is wrong. Stephen Meyer explains that inferences have historically played an important role in science:

> "Unlike mathematicians, scientists rarely provide strict logical demonstrations (deductive proofs) to justify their theories. Instead, scientific arguments often utilize inductive inference and predictive testing, neither of which produces certainty. As Owen Gingerich has argued, much of the reason for Galileo's conflict with the Vatican stemmed from Galileo's inability to meet scholastic standards of deductive certainty a standard that he regarded as neither relevant to nor attainable by scientific reasoning. Similar episodes subsequently made it clear that science does not necessarily possess a superior epistemic status; scientific knowledge, like other knowledge, is subject to uncertainty."
> (The Methodological Equivalence of Design & Descent: Can There Be a Scientific "Theory of Creation"? by Stephen C. Meyer)

If nothing in science can be positively said with 100% confidence, how then do we learn through the scientific method? Inductive reasoning, or inference, is used to validate hypotheses in science. While no hypothesis is ever said to be "proven", it can be supported, to varying degrees, by evidences which it predicts. Thus, science is tentative, incomplete, and never completely final. Well-supported theories are often said to be "fact", though in the strict sense of the word, there is no such thing as a true "scientific fact". Thus, intelligent design theory and all other scientific theories, such as the theory of evolution, can only be inferred through fulfilled predictions. For example, evolution may predict that vertebrates tetrapods would have a similar bone structure in their limbs. If we find that, then we have satisfied a prediction of evolution. Many have used facts like this to infer that all tetrapods share a common ancestor. We have not "proven evolution," but rather have merely inferred it based upon a fulfilled prediction (for an analysis of the strength of the vertebrate limb argument for evolution, see [Genetic Evidence in a Nutshell](#))

The methodological equivalence of design and descent:
Epistemology is the study of knowledge--It asks the question, "how do we know what we claim we know?" Design and evolution are on the same epistemological level: both evolution and design are based upon historical unrepeatable events, and we "infer" the past action of one process or the other by working like "detectives" to try to find clues as to what happened. Neither can be proven 100%, but when we find the predicted evidence of design or evolution, we are justified in inferring one (or the other):

> "a fundamental methodological equivalence between design and descent derives from a common concern with history--that is, with historical questions, historical inferences and historical explanations."
> (The Methodological Equivalence of Design & Descent: Can There Be a Scientific "Theory of Creation"? by Stephen C. Meyer)

Intelligent design theory can thus be empirically studied because it does make predictions. According to the explanatory filter formulated by William Dembski in *The Design Inference*, specified complexity is the result of intelligent action. Thus, where specified complexity can be identified, design can be inferred. Intelligent design theory might make other predictions as well. For example, if large measures of intelligent cause were inserted into the biological realm, one might expect to find record of rapid change in the history of life, as is thought to be found in the fossil record. Tied closely to specified complexity, one might expect to find highly complex biological structures which defy a mechanistic causal explanation. Thus, intelligent design and evolutionary theory are competing hypotheses which make different predictions. Evolutionary theory predicts that the biological

structures we find must be evolvable in a step-wise fashion, while Intelligent design theory predicts that it is possible that highly complex unevolvable structures might exist. Finding this predicted complexity could justify our inferring design.

In the case of design, the following are predictions which might justify the design inference and give us "positive evidence" for inferring design:

Table 1. <u>Predictions of Design:</u>
(1) High information content machine-like irreducibly complex structures will be found. (2) Forms will be found in the fossil record that appear suddenly and without any precursors. (3) Genes and functional parts will be re-used in different unrelated organisms. (4) The genetic code will NOT contain much discarded genetic baggage code or functionless "junk DNA".