Doubting the world

With probably the best known statement in Western philosophy, René Descartes ushered in a new approach to philosophical inquiry that would come to be known as rationalism.

I am thinking, therefore I am

Inspired by the Scientific Revolution of the 16th and 17th centuries (see pp.50–51), philosophers looked for a method for reliably acquiring and testing scientific knowledge. Francis Bacon, for example, advocated a method of observation, experiment, and inductive reasoning. Descartes, however, was uncomfortable with this approach. Instead, he proposed a reflective method, the aim of which was to find rational principles to serve as foundations for knowledge gained through observation and experiment. He argued that our senses are unreliable, and that we can doubt everything that they tell us. However, if we doubt everything, there must at least be something that doubts—an "I" that experiences doubt. As Descartes put it: "*Cogito, ergo sum*"—"I am thinking, therefore I exist."

The primacy of reason

This was the necessary truth that Descartes was looking for, and it came not from his senses, but from his intellect. From this insight, he developed a theory of knowledge that dismissed sensory experience as unreliable and instead proposed that knowledge is primarily acquired by deductive reasoning.
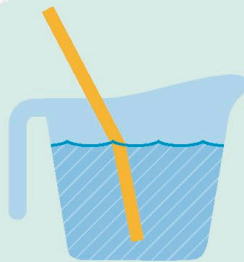
> "This proposition, I am, I exist, is necessarily true."
>
> René Descartes, *Discourse on the Method* (1637)

The method of doubt

Descartes' method of doubt is presented in his *Discourse on the Method* (1637). His goal was to show both that certainty can be gained through deductive logic alone and that science and reason are compatible with the Christian faith. His argument laid the foundations of modern rationalism—the belief that knowledge comes primarily from reason rather than experience. This view became popular in Europe and stood in contrast to the British tradition of empiricism, as exemplified by John Locke (see pp.60–61).

2 I may be dreaming
When I am dreaming, what I experience often seems to be real. Therefore, I cannot be sure that what I am experiencing now is not a dream.

1 I cannot trust my senses
My senses can be deceived by things such as optical illusions—for instance, a straw "bending" in water. Therefore, they are not reliable sources of information about the world.

5 God accounts for me
I necessarily exist, but I have not created myself; therefore, there must be something greater than me that created me: God.
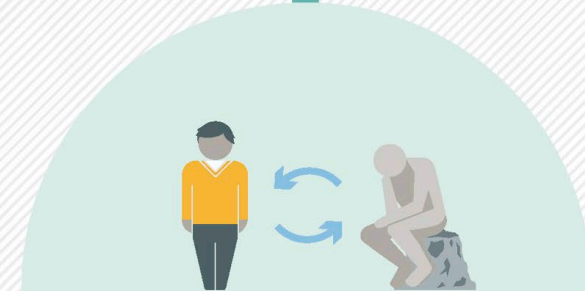
6 God is good
God has provided me with senses and intellect. Because He is benevolent, He does not want me to be deceived, so I have faith in what my senses tell me about the world.

4 Cogito, ergo sum
If my body could be an illusion, there must be something other than my body that suspects this. Therefore, that thinking thing—which is me—must necessarily exist.

3 A demon may be tricking me
Although unlikely, it is even possible that an evil demon is playing tricks on me, making me believe things that are not real. Even my body may be an illusion.

THE DISEMBODIED SELF

Descartes dismissed sensory perception as unreliable: the only thing that he could be sure of was his own existence as a thinking thing. The essential self is therefore the mind, and is distinct from and independent of the physical body.

The blank slate

In *An Essay Concerning Human Understanding*, John Locke rebutted the rationalists' argument that we are born with innate ideas (see pp.52–55), which laid the foundations for modern empiricist thought.

British empiricism

Central to the philosophy of John Locke (1632–1704) is the idea that there is no such thing as innate knowledge: at birth, the mind is what he called a *tabula rasa*, or "blank slate." When we observe newborn babies, he said, it is clear that they do not bring ideas into the world with them. It is only as we go through life that ideas come into our minds, and these ideas are derived from our experience of the world around us. This idea stood in marked contrast to a lot of contemporary thinking, particularly the ideas of Descartes (see pp.52–55) and Leibniz (see pp.62–63), who argued that we are born with innate ideas and that our reason, rather than our experience, is our primary means of acquiring knowledge.

Locke's idea was not new—it had been defended by Francis Bacon (see pp.50–51) and Thomas Hobbes (see pp.56–57), and even went back to Aristotle (see pp.38–45). However, Locke was the first philosopher to give a comprehensive defense of empiricism—the idea that experience is our principal source of knowledge. That is not to say, however, that Locke dismissed the importance of reasoning in our acquisition of knowledge. Indeed, he believed that each of us is born with a capacity for reasoning, and that the right education is critical to a child's intellectual development.

> ## "No man's knowledge here can go beyond his experience."
>
> John Locke, *An Essay Concerning Human Understanding* (1689)

Learning the world

Locke claimed that there are two kinds of ideas—ideas of sensation and ideas of reflection—and that the latter are made out of the former. In Locke's words, the objects of the world "cause" ideas of sensation to form in our minds. We then organize these ideas into ideas of reflection.

ROUND

BOUNCY

SOFT

1 BLANK SLATE
At birth, a baby brings no ideas into the world; its mind is completely blank. This means that everything that it will know will come from the world around it. For this reason, Locke claimed that the child should be exposed to the best ideas possible.
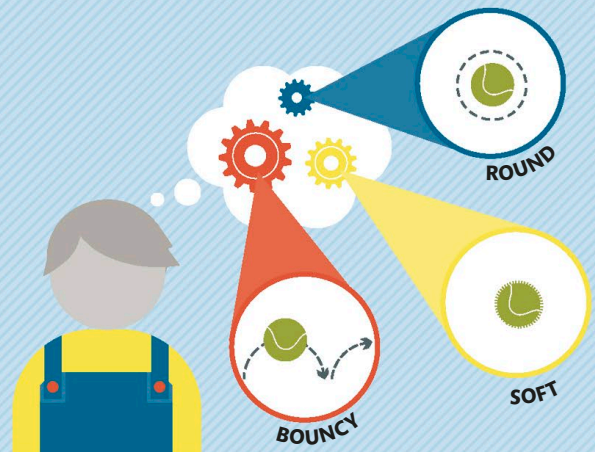
2 IDEAS OF SENSATION
According to Locke, the objects of the world cause ideas of sensation in the infant's mind. These simple impressions form in the way that light forms images on photographic film: it is a mechanical process that requires no effort on the child's behalf.

PRIMARY AND SECONDARY QUALITIES

According to Locke, we can only receive information about the world through our senses. This information, he claimed, is of two kinds and concerns what he called the primary and secondary qualities. An object's primary qualities, such as its height or mass, are objective and exist independently of whoever is observing it. However, its secondary qualities, such as its color or taste, may differ between observers. A ball, for example, may appear gray or multicolored to two different observers, but both will agree on its size.

PRIMARY QUALITIES
For Locke, the primary qualities of a thing are its length, breadth, height, weight, location, motion, and overall design.

SECONDARY QUALITIES
The secondary qualities of a thing are its color, taste, texture, smell, and sound. These qualities depend on the perceiver's senses.

SOCCER

TEAMWORK

COMPETITION

3 IDEAS OF REFLECTION
As the child grows older, it builds ideas of reflection out of its ideas of sensation. From its interactions with other people and its simple understanding of the qualities of a ball, for example, it can create the idea of "soccer." From that and other simple ideas, it forms the more complex ideas of "teamwork" and "competition."

✓ NEED TO KNOW

❯ **Although Locke denied** the existence of innate ideas, he claimed that we have innate capacities for perception and reasoning.

❯ **In the 19th century**, the notion of innate ideas resurfaced. Scholars questioned whether behavioral traits come from "nature or nurture."

❯ **In the 20th century**, Noam Chomsky (see pp.162–163) extended Locke's idea that we have an innate capacity for reasoning. Chomsky claimed that all humans have an innate ability to acquire language.

Facts and ideas

Like John Locke before him, David Hume believed that our knowledge derives primarily from experience. However, he also argued that we can never know anything about the world with certainty.

Natural assumptions

David Hume (1711–1776) was primarily interested in epistemology (the nature of knowledge) rather than metaphysics (the nature of the universe). In *An Enquiry Concerning Human Understanding*, he set out to examine the way that human psychology determines what we can and cannot know, and in particular what we can and cannot know for certain.

Although an empiricist—that is, he believed that experience is our primary source of knowledge—Hume conceded that many propositions, such as mathematical axioms, can be arrived at by reason alone and cannot be doubted: to doubt that 2 + 2 = 4 is to fail to understand its meaning. However, he argued that such truths tell us nothing about the world: they simply express relationships between ideas. To gain knowledge about the world, we need experience, but Hume argues that such knowledge can never be certain. We are therefore caught on the tines of a fork: on the one hand, we have certainty about things that tell us nothing about the world; on the other hand, our knowledge about the world is never certain.
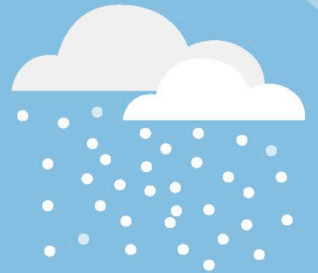
"THE ANGLES OF A TRIANGLE = 180°."

180°
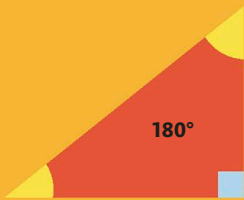
"2 MEN + 2 WOMEN = 4 PEOPLE."

"IT IS SNOWING."

Relations of ideas

Statements of this kind are necessary truths, which means that they cannot be contradicted logically. For example, it is not possible to say that the angles of a triangle do not add up to 180°, or that 2 plus 2 does not equal 4. We can be certain of such truths, but they tell us nothing about the world; they merely express relationships between ideas.

Hume's fork

For Hume, there are two kinds of truth: "relations of ideas" and "matters of fact." The former are true by definition, while the latter depend on the facts. Philosophers call this distinction "Hume's fork."

Hume argues that it is human nature to make assumptions about the world, especially that it is predictable and uniform. We assume, for example, that when we throw a brick at a window, the brick "causes" the window to smash. However, Hume argues that all we know for certain is that throwing a brick at a window is regularly followed by the window smashing. We never perceive causes, he says, but only a "constant conjunction" of events—that is, the regular occurrence of certain events following others. We only imagine a "link" between them.

Hume is not saying that we are wrong to make assumptions—life would be impossible without them. Rather, he is suggesting that we should recognize the extent to which assumptions govern our lives and not confuse them with the truth.

✓ NEED TO KNOW

❯ **According to Hume**, the difference between mathematics and the natural sciences is that mathematical truths are what he calls "relations of ideas," or necessary truths, whereas scientific truths are contingent, or conditional, "matters of fact."

❯ **Half a century before Hume**, Gottfried Leibniz (see pp.62–63) made a similar distinction between truths of reasoning and truths of fact.

❯ **Immanuel Kant** (see pp.66–69) and later philosophers distinguished between analytic statements, whose truth can be established by reasoning alone, and synthetic statements, which are verified by reference to the facts.

"I HAVE A CAT."

Matters of fact

Statements of this kind are contingent, which means that their truth or falsity depend on whether or not they represent the facts. For example, it is not illogical to deny the statements "It is snowing" or "I have a cat." Their truth depends simply on the current state of the weather and whether or not I own a cat.

"Custom, then, is the great guide of human life."

David Hume, *An Enquiry Concerning Human Understanding* (1748)

THE PROBLEM OF INDUCTION

Hume argued that general statements such as "The Sun rises in the east" are logically unjustified because we cannot prove that the Sun will not rise in the west tomorrow. This also means that scientific claims, such as "The Moon orbits the Earth," are unjustified because we may discover, for example, that the Moon behaves in a different way tomorrow. Such statements are known as "inductions," because they use the inductive method of reasoning—that is, they make general claims based on a limited number of particular cases (see pp.244–245).
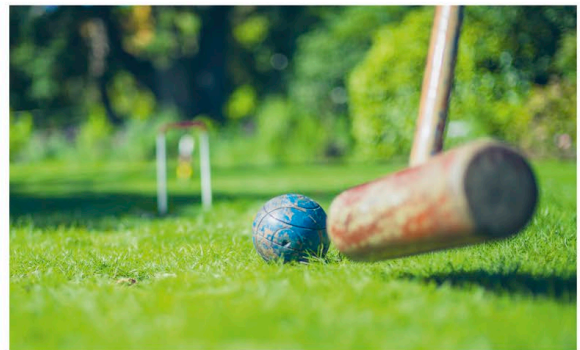
FOR HUME, we cannot be certain that a croquet ball will behave in the same way as it has in the past.

Shaping the world with the mind

Immanuel Kant recognized that while rationalism (see pp.52–55) and empiricism (see pp.60–61) presented opposing claims, both contained elements of truth. He argued that while we know the world through our senses, it is shaped by our minds.

Representations of things

Kant (1724–1804) sought to establish the limits of what we can know about the world. Unlike his predecessor John Locke, he argued that experience alone was unreliable: not only are we limited to our particular sense organs, when we do perceive something, we only perceive a "representation" of that thing in our minds, rather than see the thing in itself. A rose, for example, may appear red or gray to different animals, so it is only ever seen indirectly, as a construct of our senses.

Kant also argued that our psychological make-up shapes the world we perceive. Our minds are so constructed, he said, that we perceive things in terms of space and time, and that anything outside these parameters is beyond our understanding. He claimed that, in a sense, we project the concepts of space and time onto the world, then perceive the world accordingly. A child, for example, learns the concepts "here" and "there" through experience, but it only does so because it innately understands the concept "space." Likewise, the child learns the concepts "then" and "now" because it has an innate understanding of the concept "time."

Transcendental idealism

Kant argued that innate concepts are what make experience possible, and he identified 14 such concepts in all (see right). They are like lenses through which we both project and view the world. Kant was therefore neither a rationalist nor an empiricist—that is, he saw neither reason nor experience as our primary source of knowledge. He described his position as "transcendental idealism."
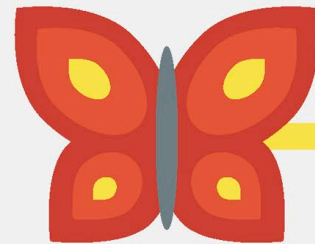
BUTTERFLY IN THE WORLD

THE NOUMENAL WORLD

Kant compared the way we perceive things to the way a painter presents an image of something. A painting may portray every detail of a scene, but it remains merely a representation of that scene, not the scene itself. In the same way, our perception of an object is a mental representation, not the object as it actually is. We experience only the "phenomenal" world, which is accessible through our senses, but can never have direct access to what he called the "noumenal" world of things-in-themselves.

?
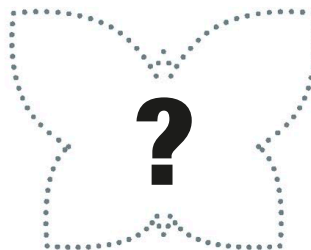
THING-IN-ITSELF

Categories of understanding

According to Kant, when we perceive an object, we shape it with our innate ideas of space and time: we project these ideas onto the object and then interpret it in those terms. He described space and time as innate "intuitions" and distinguished a further 12 concepts, or "categories," which he also claimed we understand innately and project onto what we perceive. He classified these into the four divisions of quantity, quality, relation, and modality.

"Thoughts without content are empty, intuitions without concepts are blind."

Immanuel Kant, *Critique of Pure Reason* (1781)

Quantity

The following categories enable us to distinguish single things from many things and to perceive many things as parts of a whole:

❯ **Unity**
❯ **Plurality**
❯ **Totality**

Quality

The categories of quality give us the notions of something being real or unreal and that of something having an extent or limit:

❯ **Reality**
❯ **Negation**
❯ **Limitation**

Categories

Categories

SPACE / TIME

Categories

Categories

Relation

The categories of relation enable us to perceive the properties of an object and to understand its relationships to other objects:

❯ **Inherence / subsistence**
❯ **Causality / dependence**
❯ **Community / reciprocity**

Modality

The modal categories enable us to know if something is possible or not, whether it exists or not, and whether it is necessary or not:

❯ **Possibility / impossibility**
❯ **Existence / nonexistence**
❯ **Necessity / contingency**

Kinds of truth

At the heart of Kant's transcendental idealism (see pp.66–67) is the idea that it is possible to have knowledge of the world independently of empirical evidence or experience.

A priori and *a posteriori* knowledge

Before Kant, many philosophers had realized that there are two kinds of truth: necessary truth and contingent truth. A necessary truth, such as "Circles are round," is one that is true by definition, so it cannot be denied without contradiction. A contingent truth, such as "The sky is blue," is either true or false according to the facts. Kant introduced two similar distinctions: first between analytic and synthetic statements, and second between *a priori* and *a posteriori* knowledge.

Types of statements

An analytic statement is one that is necessarily true, or true by definition, whereas a synthetic statement is one that is either true or false according to the facts. The distinction between *a priori* and *a posteriori* knowledge, however, concerns how we come to know the truth—whether by reasoning alone or by reference to the facts.
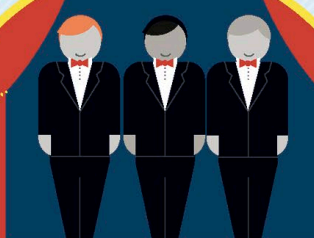
"All bachelors are happy."

SYNTHETIC
The statement "All bachelors are happy" is synthetic, since being happy is not contained in the definition of "bachelor."

"All bachelors are unmarried."

ANALYTIC
The statement "All bachelors are unmarried" is analytic, since the term "unmarried" is contained in the definition of "bachelor."

"2+2=4"

A PRIORI
A priori knowledge is independent of experience and includes analytic statements, but also mathematical propositions, such as "2 + 2 = 4."

"Water is H_2O."

A POSTERIORI
A posteriori statements are dependent on empirical evidence, or experience, and cannot be arrived at through rational reflection.

An analytic statement, like any proposition, consists of a subject and predicate, but its predicate is implicit in its subject. For example, the statement "A square has four sides" is analytic because its predicate ("four sides") is implicit in its subject ("square"), so it is true by definition. Synthetic statements, however, have informative predicates, which tell us something new about the world. For example, "This square is red" is synthetic, because its predicate ("red") is not contained in its subject ("square").

Kant also identified two different kinds of knowledge: *a priori* knowledge, which is known independently of experience, and *a posteriori* knowledge, which is known through experience only. These two kinds of knowledge are expressed in analytic and synthetic statements respectively.

However, Kant also claimed that there is a third kind of knowledge: synthetic *a priori* knowledge (see below), which is both necessarily true (*a priori*) and informative (synthetic).

Synthetic *a priori* truths

Before Kant, it was assumed that all *a priori* knowledge must be analytic—that is, if it is known without any empirical evidence, then it cannot tell us anything new about the world. However, Kant claimed that from *a priori* statements, we can make deductions that are synthetic, which tell us something about the world.

"A triangle is a three-sided shape."

ANALYTIC *A PRIORI*
The statement "A triangle is a three-sided shape" is analytic: the definition of its subject, "triangle," is a shape with three sides. It is also an *a priori* truth, since we understand it without empirical evidence.

"The interior angles of a triangle add up to 180°."

SYNTHETIC *A PRIORI*
This statement tells us something about a triangle that is not implicit in its definition and is therefore synthetic. However, it is also an *a priori* truth, since, for Kant, it can be arrived at through rational reflection.

Synthetic *a priori* judgements

According to Kant, we are born with no knowledge of the world, but we do have innate concepts that enable us to experience the world intelligibly (see pp.66–67). For example, we have *a priori* knowledge of the concepts of space, time, and causality, and these enable us to arrive at scientific and mathematical truths that are both synthetic (informative) and *a priori* (necessary). For Kant, the statement "3 + 3 = 6" is a synthetic *a priori* truth, because it is informative (it says more than "3 + 3 = 3 + 3") and can be arrived at through reason alone.

3 PLUS 3 …

… EQUALS 6

Useful truths

As the United States began to assert its cultural identity in the second half of the 19th century, American philosophers developed a distinctively practical school of thought, which became known as pragmatism.

Pragmatism

The pioneer of this American pragmatism was a mathematician and logician, Charles Sanders Peirce (1839–1914). Looking at philosophical inquiry from the point of view of a scientist, he was struck by how little practical application it had. Much of philosophy seemed to be a debate about abstract concepts with no connection to the world we live in. To counter this tendency, Peirce proposed a pragmatic maxim: "Consider the practical effects of the objects of your conception. Then, your conception of those effects is the whole of your conception of the object."

Peirce suggested that to understand the meaning of a proposition, we should consider what happens if we accept it and act upon it—in other words, whether it makes any practical difference. From this starting

Belief and action

James notes that we often have no evidence for our beliefs, but act on them anyway to discover if they are true. For example, if someone is lost in a forest and he comes across a path, there may be no evidence that the path will take him to safety, but it is vital that he believes that it does. The example gets to the heart of James's philosophy: that our beliefs are born of necessity, and their truth depends on how much they improve our lives.

2 A ROAD TO SAFETY
If the traveler believes that the path leads to safety, then he should take it.

1 LOST IN A FOREST
If a traveler, lost in a forest, comes across a path, he needs to decide whether or not to take it: it could lead to safety, or it could lead nowhere at all.

3 A ROAD TO RUIN
If the traveler believes that the path leads nowhere, then there is no point in him taking it.

point, he deduced that knowledge consists not of certainties, but of ideas that are valid for as long as they are useful. Science, for example, generates useful ideas that are abandoned or refined when better ones are conceived.

The "cash value" of truth

Peirce's friend and colleague William James (1842–1910) adopted and developed this pragmatic approach. Truths, he argued, are different from facts, which merely state what is or is not the case. For James, facts are not true in themselves: truth is what emerges if believing them to be true has a "cash value," or makes a practical difference in our lives. Beliefs are not mental entities that are either true or false depending on how well they represent the world: the world is an unpredictable place, and our beliefs are true if they help us to make our way through it. James was a great admirer of Charles Darwin, whose *On the Origin of Species* (1859) was published when James was still a teenager. Darwin had argued that only the fittest of species survived and that they did so thanks to their development of superior biological characteristics. For James, something similar can be said about our beliefs—that they become true if they help us to survive, and become false if they have no utility.

JUSTIFIED BELIEF
4 If the traveler takes the path and finds safety, then his decision was justified: his belief has become true.

VALUELESS BELIEF
5 If the traveler stays in the forest, he dies. The truth as he saw it had no value at all.

> "**Truth** happens **to an idea. It** becomes **true, is** made true **by events. Its verity is in fact** an event, **a process.**"

William James, *Pragmatism: A New Name for Some Old Ways of Thinking* (1907)

RELIGIOUS BELIEFS

Broadly speaking, pragmatism is the view that a belief is true if it works in practice—if it is useful and makes a positive difference in our lives. However, it could be argued that by that standard anything could be true, so long as it improves our lives to believe it. Religious beliefs, for example, are seldom held for rational or commonsense reasons: many people are religious because their faith gives them comfort and moral guidance, which are nothing if not "useful truths."

The pragmatist neither denies nor confirms the objective truth of, for example, the existence of God or the power of prayer, but rather defends the right of the believer to claim it as truth. William James stressed that in examining religious belief, it is important to consider the experience of the individual rather than the claims of religious institutions, for it is only the individual who can account for the importance of their beliefs—that is, what use they have in their lives.

Ideas as tools

American thinker John Dewey (1859–1952) belonged to the pragmatic school of philosophy (see pp.76–77). He argued that ideas are neither true nor false, but are tools that either help or hinder us in our lives.

Naturalism

Like the pragmatist C. S. Peirce before him, John Dewey was influenced by the ideas of Charles Darwin, who argued that human beings have evolved through a process of natural selection in the same way as other species. In this sense, Dewey was a "naturalist," in that he believed that our ability to reason is bound up with our instinct for survival—that we think in order to solve practical problems, rather than to speculate about metaphysical issues. He was also influenced by Hegel (see pp.72–75), who argued that all human activities—including science, art, and philosophy—are shaped by history, so they can only be understood in their particular historical contexts.

Instrumentalism

Dewey sometimes referred to his position as "instrumentalism," by which he meant that ideas should be seen as tools and should be judged according to how useful they are at solving specific problems. He contrasted this with the idea that

DEWEY AND DEMOCRACY

Dewey was a passionate believer in democracy. He argued that democracy is only possible in a society in which people are properly educated, but felt that too many schools did little more than raise children to fit in with the social order. Instead, he proposed that schools should enable children to discover their own talents and to find their own unique place in the world. Only then, he argued, could children grow up and truly participate in democracy, for only then could their opinion be said to be fully informed. Effectively, he thought that schools should teach children how to live.

Dewey also supported women's emancipation and racial equality. As he wrote in *Democracy and Education* (1916): "If democracy has a moral and ideal meaning, it is that a social return be demanded from all and that opportunity for development of distinctive capacities be afforded all."

Useful thinking

Dewey rejected the traditional "correspondence" theory of truth, according to which an idea is true if it corresponds to reality. Instead, he argued that ideas are tools that we use to help us live our lives. He redefined "truths" as "warranted assertions," arguing that we hold them for as long as they are helpful.

Toolbox of ideas

According to Dewey, ideas are tools that we select to resolve "felt difficulties" in the world. These difficulties are practical in nature and arise from our need to adapt to our environment.
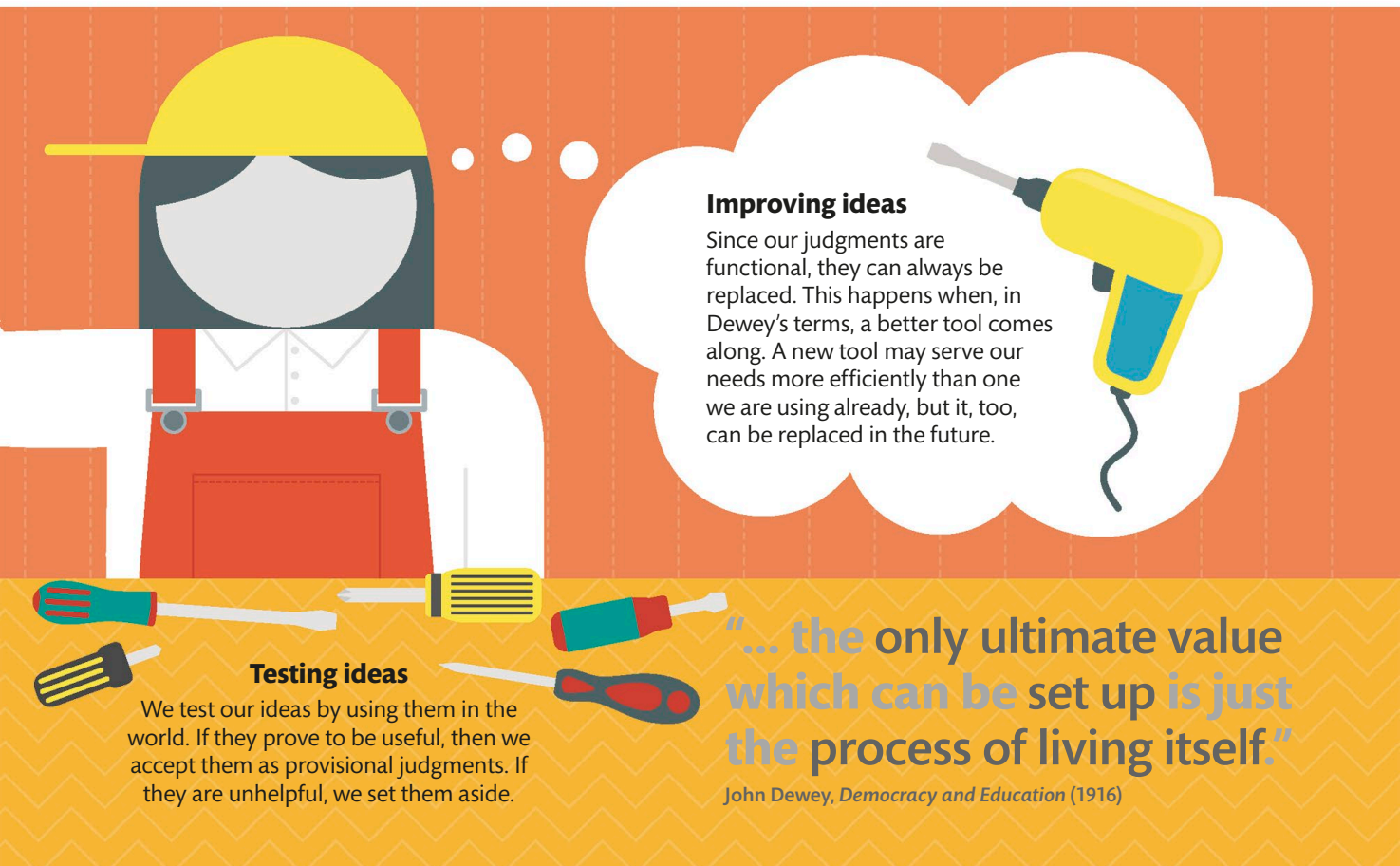
thoughts are representations of the world. Additionally, Dewey believed that just as humans evolved by adapting to changing environments, the same is true of ideas. He argued that theories are neither true nor false, but only efficient or inefficient at explaining and predicting phenomena. Like his fellow pragmatists, he thought that the important question when assessing an idea is not "Is this the way things are?" but "What are the practical implications of this perspective?"

The process of inquiry

Dewey's view broke away from centuries of thinking about the nature of knowledge. Since Descartes (see pp.52–55), rationalists had argued that we are born with innate ideas, and since Locke (see pp.60–61), empiricists had argued that ideas are copies of impressions generated by experience. Dewey believed that both traditions were wrong and had failed to appreciate that our ideas serve to manipulate the world. He rejected the phrase "theory of knowledge," preferring "theory of inquiry" instead—inquiry being an active, human practice.

Dewey distinguished three phases of inquiry: first, we encounter a problem and react to it by instinct; second, we isolate the information that is relevant to the problem; and third, we imagine solutions to the problem and then act on our favored option. For Dewey, philosophers had wrongly isolated the third stage of this process, imagining that ideas can be separated from the world in which problems arise. Instead, he claimed that knowledge is functional and is only valid as a basis for human action.

Improving ideas

Since our judgments are functional, they can always be replaced. This happens when, in Dewey's terms, a better tool comes along. A new tool may serve our needs more efficiently than one we are using already, but it, too, can be replaced in the future.

Testing ideas

We test our ideas by using them in the world. If they prove to be useful, then we accept them as provisional judgments. If they are unhelpful, we set them aside.

"... the only ultimate value which can be set up is just the process of living itself."

John Dewey, *Democracy and Education* (1916)

Points of view

A number philosophers have argued that it is impossible to think objectively or without being influenced by one's viewpoint. However, Thomas Nagel (1937–) claims that objectivity is possible within limits.

Points of view and objectivity

The idea of objective thinking suggests that there is a way of looking at the world that is not influenced by our particular, subjective viewpoints, which are shaped by our cultural and biological conditioning. To look at ourselves objectively is to see ourselves "from the outside" and to understand which of our beliefs are subjective and which are true regardless of who we are. Over a series of books and articles, Thomas Nagel discusses the extent to which this is possible.

For Nagel, the physical sciences are models of objectivity: they provide us with knowledge about the world and give us ways of testing that knowledge. In describing human beings, science tells us that we are creatures that have particular kinds of bodies and that these give us our human point of view.

However, Nagel argues that there is only so much that science can reveal. For example, science can tell us all sorts of things about bats, such as what they eat and how they communicate, but not what it is like to *be* a bat. In other words, it can tell us what bats are like from *our* perspective (from the outside), but not what they are like from *their* perspective (from the inside). Nagel's point is that science shows that there are numerous creatures in the world whose experiences, or points of view, are wholly unlike our own. All we can do is speculate about the nature of their experience, in the same way that someone who is blind can only speculate about the experience of sight.

For Nagel, knowledge is "a set of concentric spheres, progressively revealed as we detach gradually from the contingencies of the self." By thinking objectively, we leave our particular perspectives behind, but our objectivity is limited: it gives us an outside view of a world that is filled with other perspectives, each of which has its own unique sense of its own existence.

The view from nowhere

According to Nagel, thinking objectively means thinking outside the boundaries of our subjective perspectives. The further we leave these perspectives behind, the more objective our thinking becomes. The end goal of this process is to reach a vantage point that least depends on our biological and cultural perspectives—a view that Nagel calls "the view from nowhere." The physical sciences, for example, operate in this "nowhere": they describe things that are true for everyone, and not just for the scientists themselves. In *Points of View* (1997), the philosopher A. W. Moore calls the representations that are produced from no point of view "absolute representations," for they describe the world with "complete detachment."
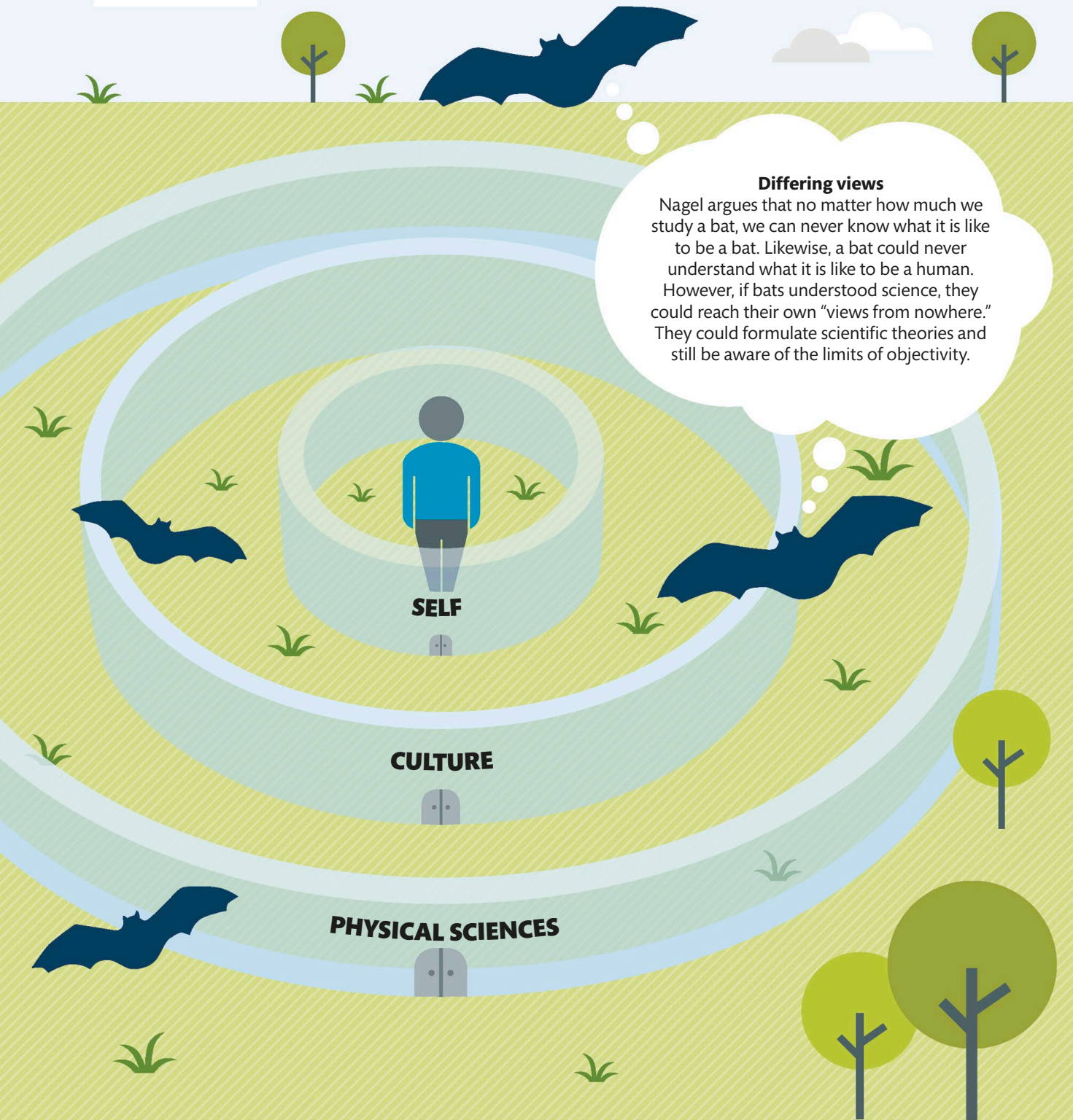
THE NATURE OF CONSCIOUSNESS

In 1974, Nagel published a paper titled *What is it like to be a bat?* In it, he argued that if something is conscious, then there is something that it is like to be that thing: in other words, that to be conscious is to have a perspective. His argument relies on the idea that to be conscious is always to be conscious *of* something, and that the character of what we perceive depends on our senses. For these reasons, creatures with different senses perceive the world in different ways, so being a bat is very different from being a shark or a dog. Nagel's argument is a criticism of the materialists' claim that consciousness can be fully explained by describing a creature's brain (see pp.152–153).

"**What is** wanted **is** some way of making **the** most objective standpoint **the** basis of action."

Thomas Nagel, *The View From Nowhere* (1986)

Differing views
Nagel argues that no matter how much we study a bat, we can never know what it is like to be a bat. Likewise, a bat could never understand what it is like to be a human. However, if bats understood science, they could reach their own "views from nowhere." They could formulate scientific theories and still be aware of the limits of objectivity.

SELF

CULTURE

PHYSICAL SCIENCES

Science and falsification

The philosopher of science Karl Popper challenged one of our oldest ideas—namely, that scientists should construct theories and then show that they are true.

Science and pseudoscience

According to Popper (1902–94), a theory should only be called "scientific" if it is falsifiable—that is, if there are conditions under which it can be shown to be false. This undermines the idea that scientists should make theories and then demonstrate that they are true—a process that, Popper argued, gives credibility to all kinds of "pseudoscience."

For Popper, an example of pseudoscience was Alfred Adler's theory of "individual psychology."

Popper noted that if one man drowns a child and a second man dies to save a child, both, according to Adler, may be motivated by inferiority complexes—the first empowering himself by committing a crime, the second doing so by being selfless. Popper claimed that he could think of no human behavior that could not be interpreted in terms of Adler's theory, and that, far from proving the truth of the theory, this showed that it was not a theory at all—or at least,

not a scientific hypothesis. Popper contrasted this with Einstein's theory of general relativity, which was scientific precisely because it was open to being falsified by observation. So far, however, the theory has yet to be refuted.

By claiming that science is a process of conjecture, Popper avoided the "problem of induction" (see p.65), which states that scientific theories are unjustified because they cannot be proven to be true.

FALSIFICATION AND VERIFICATION

Popper considered the statement "All swans are white." "All swans" describes an infinite set of objects, so no matter how many white swans we observe, we can never prove the claim that all swans are white. However, we need only see a single nonwhite swan in order to falsify it. Falsification, then, has the merit of being achievable, whereas verification (proving a theory to be true) does not. Moreover, falsification reminds us of what science should be about—namely, disproving our provisional theories, rather than encouraging belief in things that cannot be proved. For Popper, the Marxist theory of history (see pp.74–75) and Freud's theory of the unconscious are in this sense unscientific.
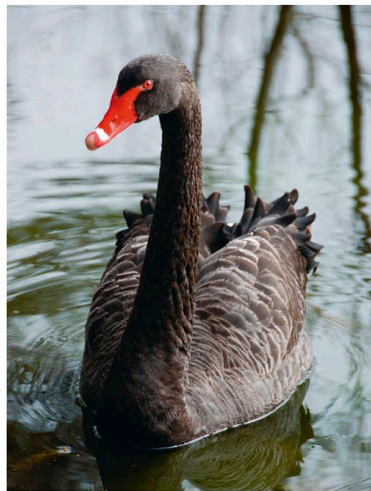
A BLACK SWAN falsifies the theory that all swans are white.

The problem-solving pursuit

Popper argued that science attempts to solve the practical problems of the world and does so by formulating theories and then performing experiments to test and falsify those theories. He believed that the growth of scientific knowledge is thus the constant reformulation of theories that have been disproven by falsification. The best theories survive attempts at falsification, but this does not guarantee that they, too, will not be falsified in the future.

1 **Potential scientific theories**
For Popper, if a theory is falsifiable and supported
by the evidence, then it can be accepted as
the truth. However, since it may be falsified
in the future, its truth is provisional. A theory
that cannot be falsified is pseudoscience.

2 **Scientific theories**
Newton's law of gravity was scientific precisely
because it could be tested or shown to be
false. The same is true of Einstein's theory
of general relativity, which amended
Newton's law.

3 **Pseudoscience**
Theories that cannot be falsified are
pseudoscience. For Popper, these included
Freud's theory of the unconscious, Adler's
theory of individual psychology, and
the Marxist theory of history.
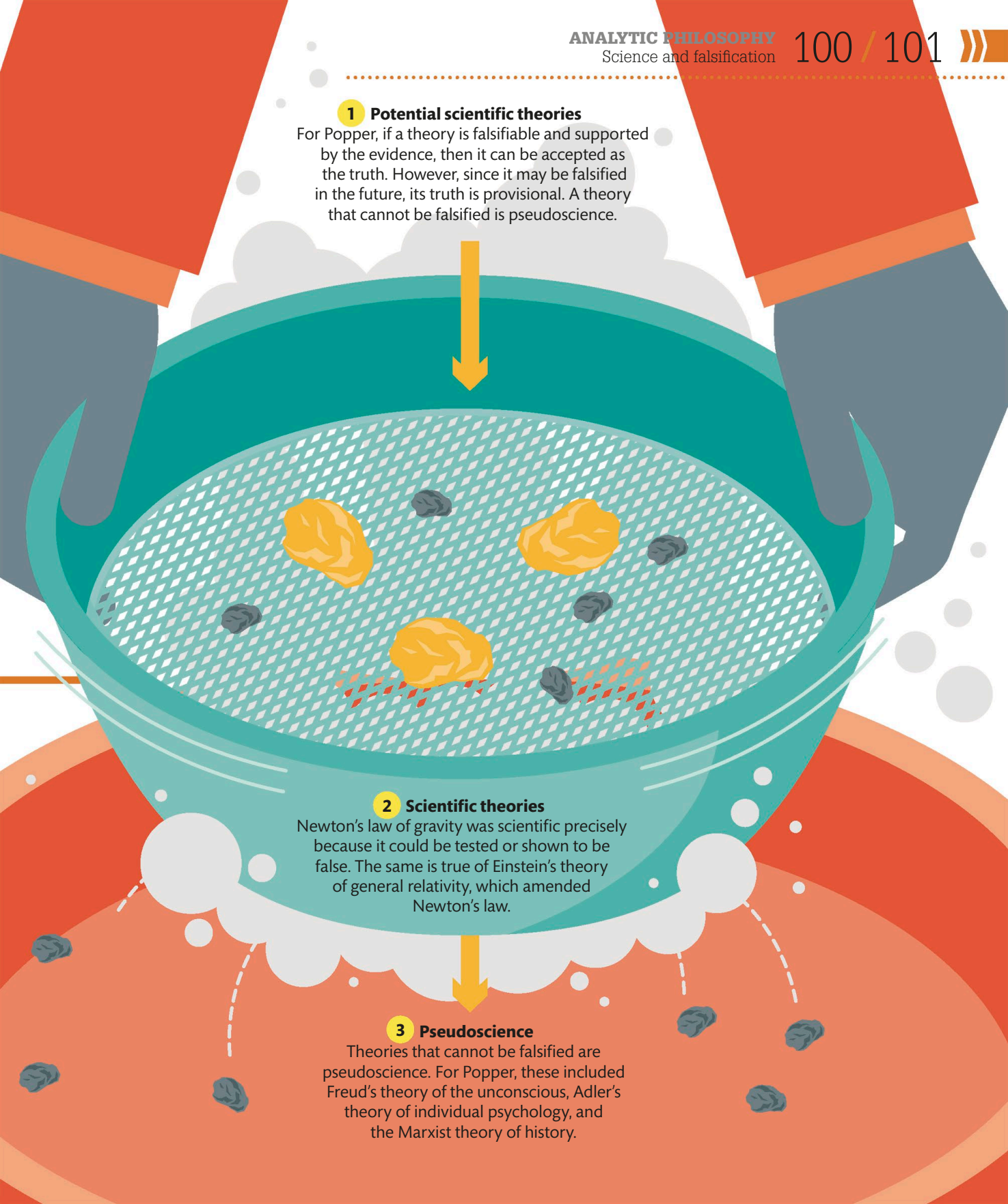
Scientific revolutions

US philosopher and historian Thomas Kuhn challenged the dominant views of how the physical sciences work and transformed our understanding of the philosophical framework of scientific practice.

Paradigm shifts

Kuhn (1922–1996) believed that science does not always progress in a linear and gradual way. In fact, in *The Structure of Scientific Revolutions* (1962), he argued that the most significant advances in science take the form of revolutions, which he called "paradigm shifts."
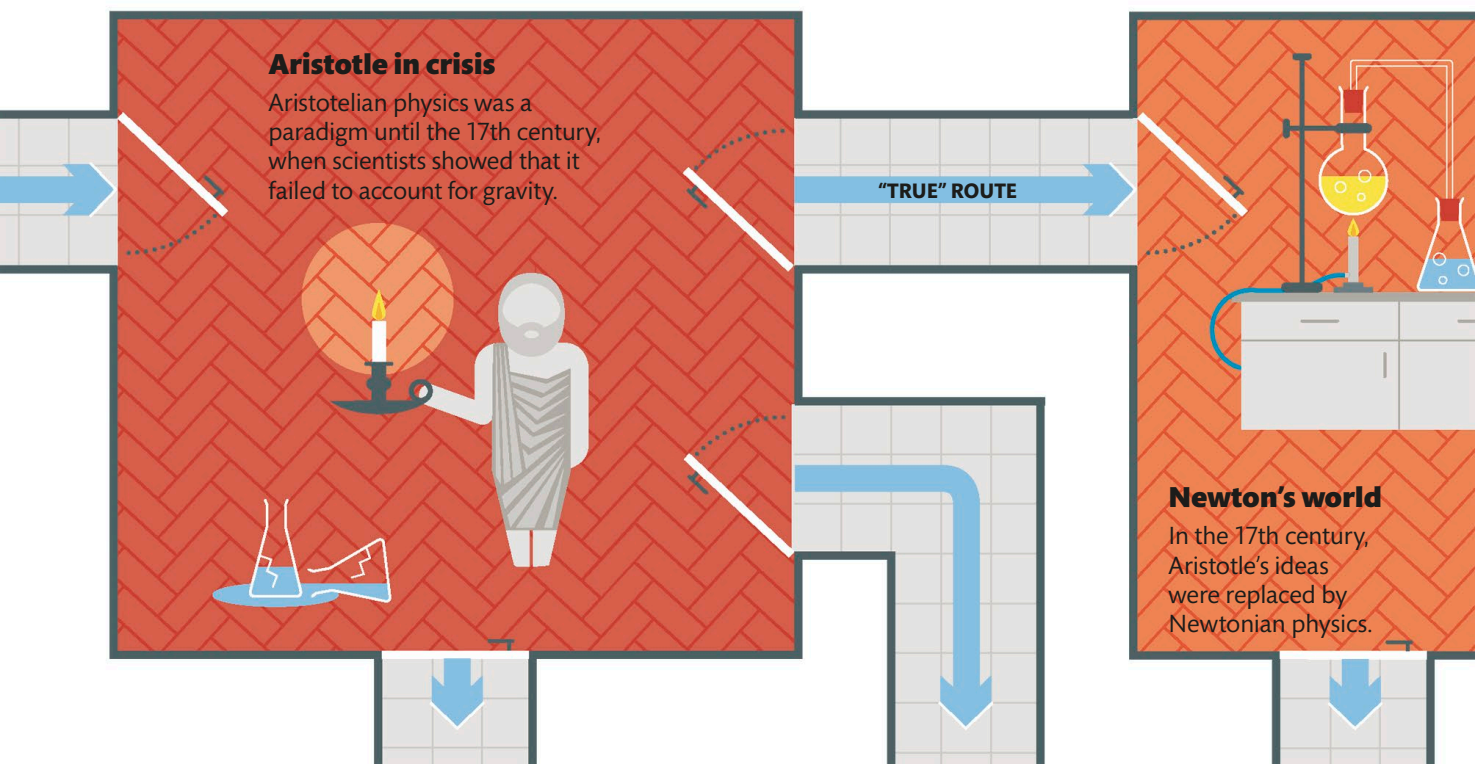
For Kuhn, a "paradigm" is a view of the world that a scientific theory presupposes. A paradigm shift is therefore a change in our view of the world, as opposed to an extension of our existing ideas.

According to Kuhn, "normal science" is what goes on between revolutions, when scientists have an agreed-upon view of the world. Newtonian physics, for example, was a paradigm that existed from the 17th century until the early 20th century, and because of it, scientists had a framework of shared assumptions. One of those assumptions was that time is absolute, or that it passes at

Avenues of knowledge

For Kuhn, while science has progressed along one particular route, there are many other routes it could have taken. A "true" route is one that solves the most important problems of the day.

Aristotle in crisis

Aristotelian physics was a paradigm until the 17th century, when scientists showed that it failed to account for gravity.

"TRUE" ROUTE

Newton's world

In the 17th century, Aristotle's ideas were replaced by Newtonian physics.

the same rate wherever one is in the universe. In 1905, however, Albert Einstein showed that time is in fact relative, or passes at different rates depending on one's perspective. This idea completely undermined Newtonian physics and forced scientists to adopt a new, Einsteinian, paradigm.

Truth and progress

However, Kuhn argued that although Newton may have been wrong about the nature of time, the difference between Newton and Einstein is not that Einstein's theory is "truer" than Newton's.
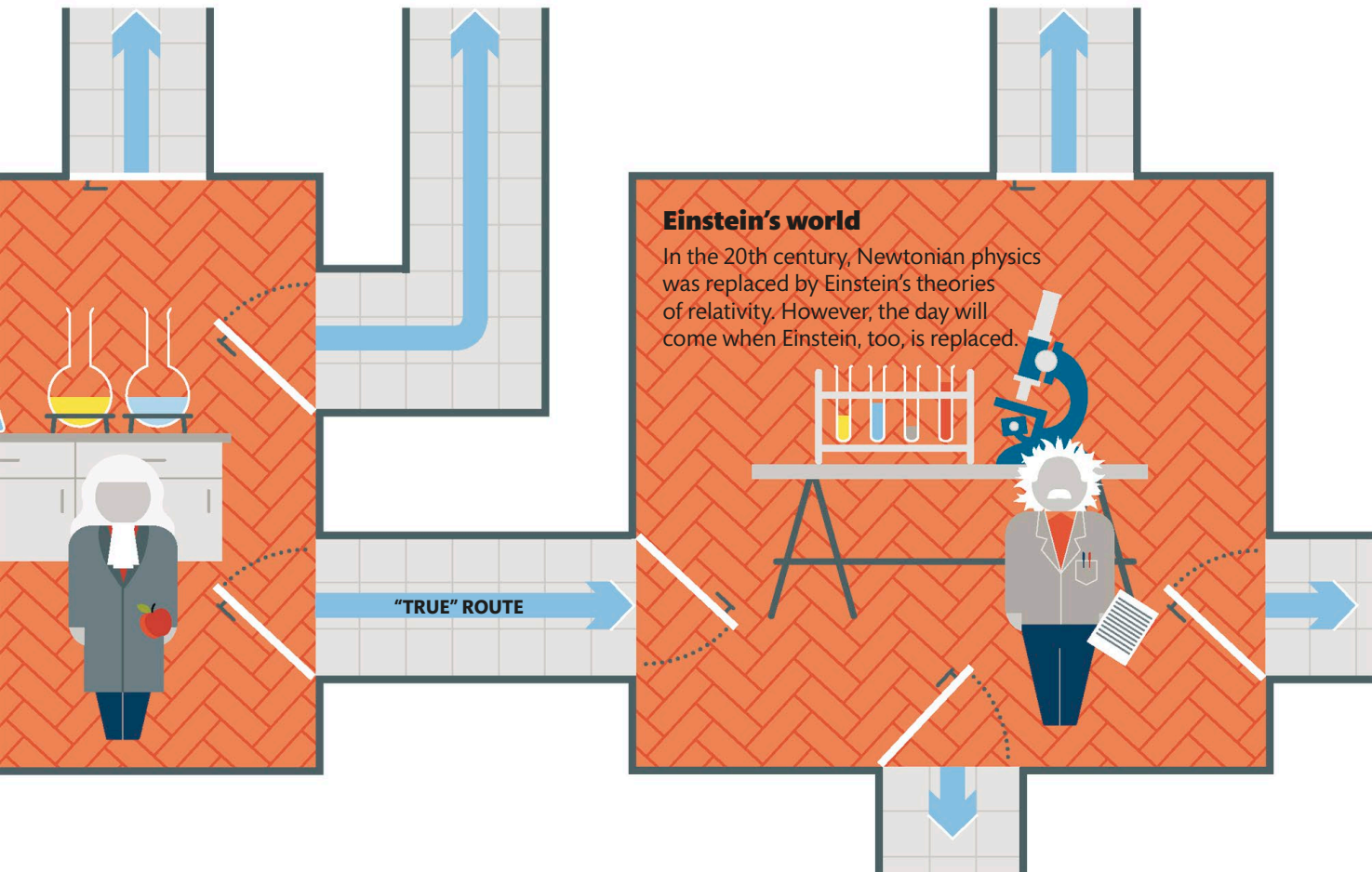
In all likelihood, one day Einstein's ideas may be replaced. Instead, Kuhn claimed that science, in any age, enables us to do certain things, and that it is the things that we can do today (build computers, make vaccines, and so on) that make our science seem "true."

For Kuhn, paradigm shifts are not stages in our progress toward the truth—they are more like milestones in our evolution or in our ability to adapt to the world. Scientific truth is thus a matter of consensus, so it is always subject to change, both between different cultures and at different times.

✓ **NEED TO KNOW**

› **A paradigm shift** occurs when a paradigm is thrown into crisis—when scientific research encounters too many anomalies.

› **The process of building** a new paradigm is what Kuhn called "revolutionary science."

› **The scientific community** returns to its regular problem-solving activities once a general consensus over the new paradigm is reached. Normal science is resumed until new anomalies are encountered.

Einstein's world

In the 20th century, Newtonian physics was replaced by Einstein's theories of relativity. However, the day will come when Einstein, too, is replaced.

"TRUE" ROUTE

Feminist epistemology

In studying the theory of knowledge (epistemology) from a feminist perspective, feminist epistemologists seek to identify and challenge harmful gender biases that prevail in many areas of knowledge.

A feminist view of knowledge

Feminist philosophers of epistemology and science have identified gender biases at the core of theoretical knowledge in disciplines such as physics, medicine, and law. They argue that women continue to be marginalized in most areas of knowledge as a result of the fact that dominant models of knowledge and the methods used to acquire knowledge both conceal and reinforce sexist biases. Stereotypically "feminine" modes of knowing (for example, practical forms of knowledge, such as how to look after children or the elderly) are underestimated and devalued.

As a consequence, women often lack self-confidence and authority in their chosen discipline and may be assumed to be less capable scientists, researchers, or academics than their male counterparts. Feminist philosophers argue that cognitive and scientific practices need to be assessed and reformed in order to ensure that women are fairly treated in these traditionally "masculine" fields.

Different perspectives

Feminists argue that women face greater adversity than men in our male-dominated society (see Standpoint theory, right), which gives them a different understanding of a situation. A man may think he can assess a situation objectively, but his perspective is skewed by patriarchal practices and harmful assumptions.

View from above

What a wonderful, clear view I have from the top of the mountain! Here I am, master of the objective view! I see everything clearly.

Men only

Many areas of theoretical knowledge have been created by men for men's purposes. As a result, they may contain many unquestioned biases.

Questioning gender biases

This feminist view of epistemology does not necessarily imply that all knowledge is determined by gender. Feminists claim, however, that types of knowledge that are important to women's interests are gendered. In doing so, they are not claiming that objectivity is not possible or desirable, but are raising questions about objectivity, such as whether it is possible or necessary to overcome specific gendered perspectives to achieve objectivity. They also question whether an unbiased view is always desirable and ask what makes a certain perspective or situation a privileged one, and in what sense. They also consider whether or not men can put themselves in women's shoes, and women in men's, in order to gain a new and valuable perspective.

STANDPOINT THEORY

Along with feminist empiricism and postmodern approaches (see pp.140–141), standpoint theory is one of several distinctive feminist approaches to knowledge. Standpoint theorists, including Sandra Harding (1935–), argue that the social position of women represents a standpoint (point of view) of a disadvantaged or oppressed group. This standpoint allows women to see the shortcomings of the male-dominated practices and institutions that oppress them.

Women's standpoint is privileged because they have direct knowledge of what it means to be oppressed, so they are capable of a more insightful critical reflection. The oppressors—groups of powerful men—tend to ignore harmful assumptions and the consequences of their actions.

The aim of standpoint theory is to achieve a collective understanding among women as a social group and to reveal these shortcomings and harmful assumptions. On this basis, feminists can act politically to fight against the representation of women as objects of men's desires and subordination and to promote women as capable of holding all forms of knowledge, as well as people whose needs and interests should be properly taken into account in every area of knowledge.

Feminist epistemology

The adversity faced by women reveals that the tools and workings of traditional knowledge are in need of critical examination because they often produce limited and gender-biased knowledge.

Oppressed standpoint

I must find new ways to get to the top of the mountain, but I'll keep going in order to achieve objectivity and gain knowledge that is free of gender bias.

Critical theory

Developed as a response to the rise of 20th-century capitalist society, critical theory aimed to free individuals from ideological, cultural, and political forms of domination.

Emancipation

Led by a group of scholars based in Frankfurt, Germany, in the 1930s, critical theorists examined modern capitalist society, seeking to identify and expose its limitations—in particular, the norms and institutions that define society and that can exert power over individuals. Critical theory attempted to uncover not only sources of domination, but also possibilities for social change, with the eventual practical aim of human emancipation. A "real democracy," according to Max Horkheimer (1895–1973), leader of the Frankfurt School, is one in which "all conditions of social life that are controllable by human beings depend on real consensus."

Instrumental rationality

Horkheimer and Theodor Adorno (1903–1969) were critical of liberalism and the "instrumental rationality" that seeks to identify efficient means for specific ends, and thus control and manipulate relevant factors in order to reach set goals. They argued that the liberal, capitalist ideologies that are used to promote social, economic, or political progress—resulting, for example, in mass production and rampant consumerism—have led to the decline of the individual. The rationality of liberalism, therefore, needs to be reconsidered for the genuine pursuit of social freedom.

Discursive rationality

More recently, Jürgen Habermas (1929–) argued for a more discursive, collaborative approach to rationality, framing it as a social enterprise to be carried out within the public sphere. He believed that assessing ethical and political norms cannot be the result of detached "armchair" thinking, but can only occur through public discussion, which should be open to all those affected by an issue. This approach emphasizes social diversity and complexity and enables people to be seen as individuals existing independently in their own socio-historical circumstances.
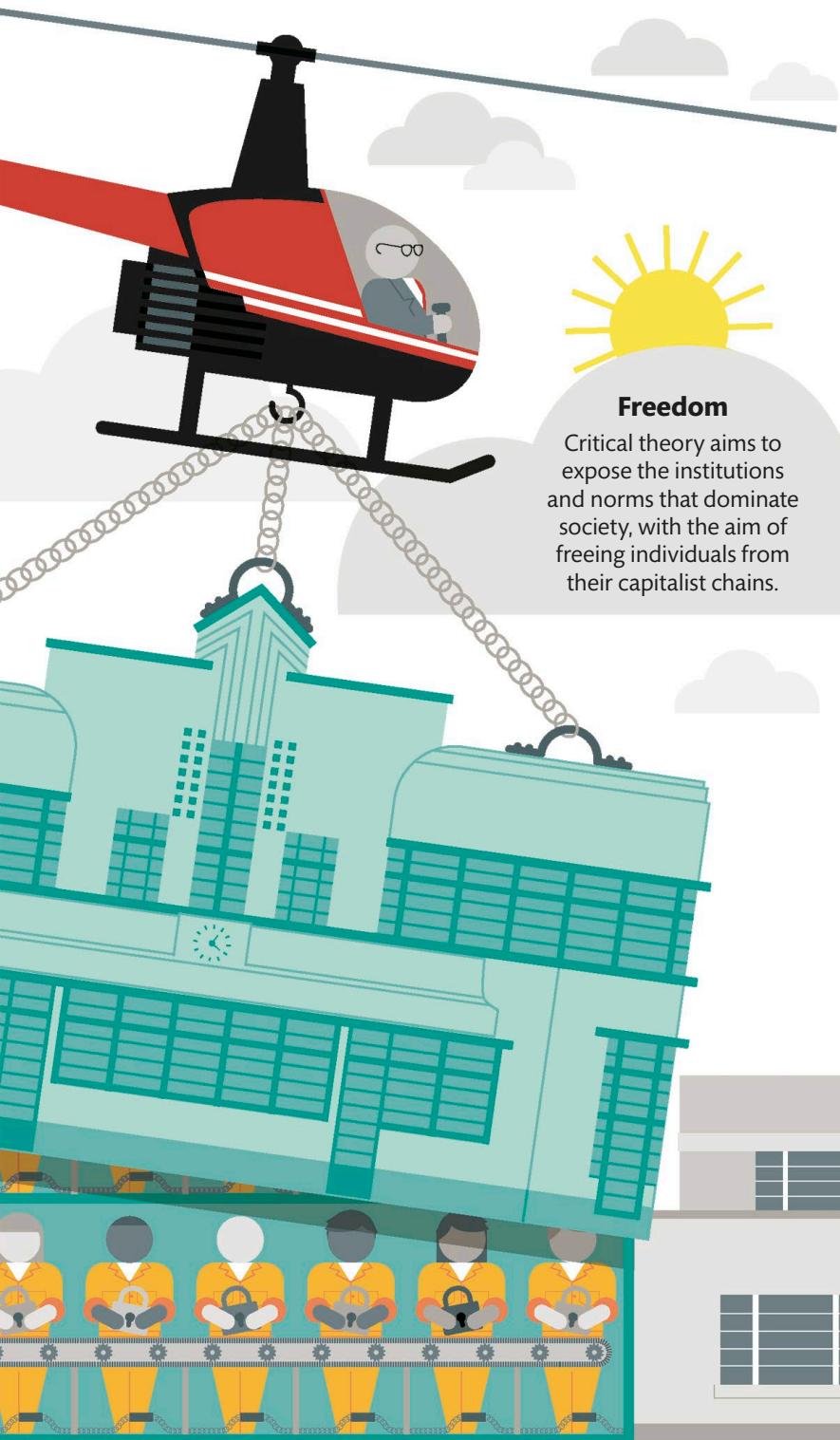
> "The **limited freedom** of the bourgeois individual puts on the **illusory form of perfect freedom.**"
>
> Max Horkheimer, *Critical Theory* (1972)

Liberation from liberalism

Critical theorists argued that liberal rationality no longer sets us free, but has instead turned into a new form of enslavement. They seek to overturn various forms of social, economic, and political control over individuals.

THE RISE OF CRITICAL THEORY

The first critical theorists were influenced by Karl Marx's critique of society and the economy (see pp.218–219). The critical theory movement centers on the Frankfurt School, whose members include Max Horkheimer, Theodor Adorno, Erich Fromm, Jürgen Habermas, and Herbert Marcuse.

Technological advances in the early 20th century allowed ideas to be quickly reproduced and circulated to huge numbers of people. This, critical theorists argue, enabled certain ideologies and cultural forces to dominate and suppressed individuals' desires to seek answers for themselves.

Critical theory has, since its foundation, extended in numerous directions, including feminism, postcolonial and race theories, and gender theory.

Freedom

Critical theory aims to expose the institutions and norms that dominate society, with the aim of freeing individuals from their capitalist chains.

Power plays

Michel Foucault (1926–1984) was a prominent social theorist, historian of ideas, and philosopher associated with postmodernism (see pp.138–139). His work challenged traditional ideas about power.

Disciplinary power

Foucault's philosophy challenged both traditional philosophers and important thinkers of his own time, such as Jean-Paul Sartre (see pp. 126–127). He was influenced to some extent by existentialism and phenomenology, as well as the work of Friedrich Nietzsche (see pp.78–79).

Foucault regarded power and knowledge as being intimately interconnected and being used to control and dominate individuals. In *Discipline and Punish* (1975), he considered new forms of control and punishment at work in the modern prison. He identified what he calls "disciplinary power," which is exerted not only in prison, but also in other institutions such as schools, hospitals, and industry. This is a mode of control that pervades all levels of society.

The tactics and techniques of modern disciplinary power are designed to sustain power structures throughout society by imposing self-regulation on the populace. Foucault thought that this modern "disciplinary power" replaces the "sovereign power" (of, for example, kings or judges) found in feudal social structures.

Conforming individuals

Disciplinary power achieves control over individuals by making them conform voluntarily to the norms and standards of society. It brings about the "normalization" of individuals (especially "deviant" persons) by requiring them to fit into existing systems such as education. The process is also intended to produce efficient workers.

At the same time, the infrastructure for the monitoring and observation of individuals—such as the surveillance camera—effectively controls individuals by identifying deviant behavior for punishment. Foucault also applies his theories on the relationship between power and identity to sexuality, a theme developed by Judith Butler in her work on gender, sex, and sexuality (see pp.140–141).

Normalization

Foucault calls the crucial technique for exerting disciplinary power over individuals "normalization." Individuals who are observed, examined, and judged as having failed to comply with required norms and regulations (such as those in industry) or to meet certain standards (of good, "normal" behavior, for example) are considered "deviant" or "abnormal." The behavior of such individuals is deemed to require correction—potentially through coercive tactics and procedures. Techniques of disciplinary control thereby turn individuals into the objects of scientific (or pseudoscientific) knowledge and domination.
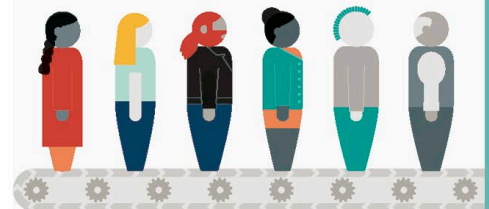
Punishment
Close surveillance is a more efficient and less severe form of control than previous systems based on physical punishment.

Diverse workforce
The capitalist economy requires vast numbers of individuals from a variety of backgrounds to work in industry.

Entering education
Education appears to open up new opportunities for students with a wide range of potential skills and abilities.
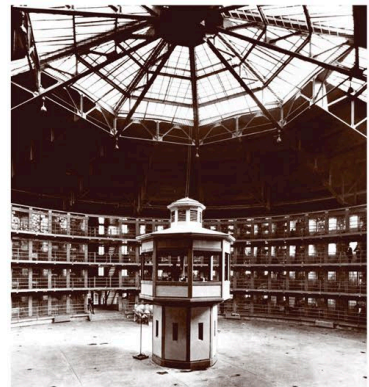
Normalization in prisons

Observation and strict surveillance achieves normalization: inmates behave as though they are constantly being observed.

Normalization in industry

Monitoring and surveillance turns individuals into efficient and useful workers who are judged by their contribution to the economy.

Normalization in education

Education aligned with norms and standards controls students, rendering them employable and therefore useful to society.

"Disciplinary power [...] is exercised through its invisibility."

Michel Foucault,
Discipline and Punish (1975)

THE PANOPTICON

Foucault used the example of Jeremy Bentham's Panopticon prison, which Bentham designed in the late 18th century, to illustrate his idea of modern disciplinary power. The architectural model of the prison includes individual cells encircling a central observation tower, from which each of the inmates could be watched. The idea was that because the inmates could be observed at any time, they would behave as though they were constantly under inspection. Foucault considered this technique to be a prototypical example of using disciplinary power to exert control over the individual.

The Panopticon was never built, but this 1928 prison in Crest Hill, Illinois, followed Bentham's original design.
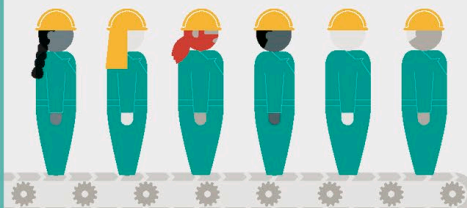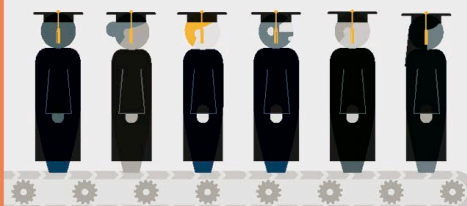
Deconstruction

Jacques Derrida was an influential postmodern thinker whose thesis of "deconstruction" laid down a detailed linguistic challenge to both the prevailing views of the day and accepted philosophical tradition.

Dismantling philosophies

The idea of "Deconstruction" proposed by Derrida (1930–2004) owed much to Martin Heidegger's earlier notion of "*Destruktion*," which itself challenged the Western metaphysical tradition—the branch of philosophy concerned with the nature of reality and our perception of it. Derrida continued Heidegger's critique of metaphysics and, in particular, its "logocentrism"—the idea that truth exists as a separate entity to the language ("*logos*") used to describe it. Derrida famously declared "There is no outside-text," meaning we cannot grasp what is beyond the language used to discuss philosophical concepts.

Derrida argued that the meaning of a word is not a representation of some "truth" that exists "out there." Instead, words draw their meaning from their links and oppositions to other terms. In traditional metaphysical thinking, binary oppositions such as essence/appearance, speech/writing, mind/body, being/nothingness, and male/female have gained acceptance. Derrida points out that these oppositions involve a biased prioritization of one term over the other in a hierarchical relationship decided arbitrarily.

Not only is this theoretically inadequate, but it can be ethically or politically dangerous, potentially resulting in violence or injustice against the things represented by the "inferior" item in each pair.

As a philosophical approach, deconstruction investigates these binary oppositions and exposes the biases that underlie them. It does not seek to reconcile the terms of opposition, but aims to destabilize and rethink the differences between traditional opposites.

Différance

Derrida further explored the meaning of words with his idea of "*différance*," a play on words that implies both difference and a deferral of meaning. He argued that meaning comes from differences between words, but that arriving at meaning is deferred because of the way we use language—terms are qualified, explained, and contextualized by the other words surrounding them. For Derrida, *différance* means that when we examine "truths," theories, and ideas, we must deconstruct the words used to refer to them, remaining alert to the fact that meaning is never as straightforward or explicit as it may seem.

POSTMODERNISM

Postmodernists argue that the world as we know it is "discursively constructed"—that there is no fixed or stable relationship between individuals and the world, and that difference is at the heart of all things. Postmodernists endorse multiple viewpoints and emphasize the "contingency"—reliance on other factors—of scientific and other rational attempts to make sense of things. They challenge the authority of reason and objectivity and argue that choosing one theory over another is a result of individual decisions rather than of rational, objective justification.

Questioning meaning

Meaning is created by the "play" of differences between words, which can be limitless and indefinite. Rather than perceiving concepts as existing in paired opposites, Derrida encourages us to question the basis of our understanding, actively deconstructing the meaning of a text by challenging implicit hierarchies, breaking traditional binary pairings, and looking for gaps—which Derrida termed "*aporias*" (Ancient Greek for "puzzles" or "contradictions")— in meaning.