

Ten quirky ideas for making our cities more sustainable

Level 3 • Advanced

1 Warmer

- Brainstorm everyday problems and challenges that are commonplace in cities and towns these days.
- What is the best way to finish this sentence?

Things that are quirky are ...

- ... questionable and controversial.
- ... annoying and unusual.
- ... slightly strange.

2 Key words

- Match the definitions below with words from the introduction to the article.

dwellers

leftfield

trials

sustainable

upsides

- radical, experimental, unconventional _____
- positive aspects of a bad situation _____
- using methods that do not harm the environment _____
- painful or difficult experiences _____
- people who live in a particular type of place _____

- Find the key words for your half of the article and write them next to the definitions.

Group 1 – ideas 1 to 5

- popular and fashionable (two words) _____
- able to withstand an earthquake _____
- connects two things to form one piece _____
- bright (referring to brightness that is produced without heat) _____
- flexibility _____
- caused by movement _____
- a small group of trees growing close together _____
- leaves and branches that form covers high above the ground _____
- take in a gas, liquid or other substance _____
- spread, or make things spread, in different directions over a wide area _____

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Group 2 – ideas 6 to 10

1. large boards for advertisements in an outside public place _____
2. the amount of water in the air _____
3. a place that usually belongs to a particular person or group _____
4. using something that you have gradually gained or achieved (two words) _____
5. fronts of buildings, especially ones that are large or impressive _____
6. the beautiful qualities of something _____
7. energy, enthusiasm and determination to succeed _____
8. plants that have no roots, stems or leaves and grow in water or in other wet places _____
9. very large metal containers used in the building industry for waste – they are carried away by a truck when they are full _____
10. fixed firmly in a surface or object _____

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Group 1

Ten quirky ideas for making our cities more sustainable

Oliver Balch

16 April, 2015

From glow-in-the-dark trees to underground bike sheds and solar-powered bins, we look at some of the more leftfield solutions to help make our cities more livable.

City living has many upsides but a sustainable lifestyle is increasingly not among them. Pollution, traffic and loss of green spaces are just some of the daily trials that city-dwellers have to deal with.

Step forward the inventors. We consider ten of the wackier solutions to making our cities more livable.

1 Pop-up parks

Today's cities sometimes look like they're built more for cars than people. The pop-up park is a simple idea. Take an empty car park, a pocketful of change and a pot plant or two, and make yourself your own private park. The PARK(ing) project kicked off as an arts experiment in San Francisco and has since spread across the world. Temporary urban farms and ecology demos are just some of the ideas to have emerged out of the movement, which celebrates a day of action every September.

2 Subterranean storage

Not all urban dwellers are hooked to the car. Bikes are ever more in vogue. The question is: where to keep it safe? Tokyo-based engineering firm Giken has come up with a concept for a solution: an "eco-cycle, anti-seismic underground bicycle park". At just seven metres wide, the cylindrical storage facility buries deep enough into the ground to house 204 bikes. Owners can retrieve their bike at the touch of a button, with the automated system delivering it back above ground in around 13 seconds.

3 Glow-in-the-dark trees

When most people think of trees that glow in the dark, Christmas baubles and fallen pine needles usually come to mind. Not Daan Roosegaarde. The Dutch designer-artist has come up with a "bioluminescent" plant. The experimental technology splices DNA from luminescent marine bacteria with the chloroplast genome of a plant to create a

jellyfish-type glow. Trials are underway to create an industrial-scale version of the biomimicry-inspired technology that Roosegaarde hopes could one day replace conventional street lighting.

4 Footfall harvesting

Every day, hundreds of commuters and shoppers in the east London neighbourhood of West Ham cross the elevated pedestrian walkway close to the underground station. Few probably notice the springiness beneath their feet. Fewer still connect that five-millimetre flex in the rubber surface to the powering of the streetlights above. The paved flooring is decked with smart tiles that capture the kinetic energy from pedestrians' footsteps and convert it into electricity. Pavegen, the UK firm behind the innovation, has installed a similar system at London's Heathrow Airport, among other international locations.

5 Supertrees

It had to happen eventually: man-made trees. Singapore's Gardens by the Bay has a small copse of them. Up to 50 metres high, these steel-framed 'supertrees' not only have flowers and ferns growing up them but their metallic canopies act to absorb and disperse heat too. They're equipped to harvest rainwater, too, as well as provide air ventilation for two "climate-controlled biomes" (large conservatories, in other words) below. Eleven of the 18 trees also boast solar panels along their 'branches'.

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Group 2

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6 Water-producing billboard

We live in a consumer world. And, so we don't forget it, advertisers wallpaper our cities and highways with banks of billboards. Researchers at Lima's University of Engineering and Technology have come up with a billboard with a difference. Using a system of condensers and filters, it traps the humidity in the air and extracts the water vapour to produce around 96 litres of drinking water a day. The public can help themselves to it for free.

7 Neo-walled gardens

Gardens stopped being just the preserve of people's front lawns long ago. For a while, roof gardens were all the rage. Now, it's all about walls. Drawing on advances in hydroponics (growing plants without soil), the facades of a growing number of libraries and offices, shops and hotels are bursting into flower. One of the companies at the forefront of the "living wall" boom is UK-based firm Biotope. The company's "vertical gardens" can be seen gracing the Taj Hotel in central London and the exit wall of Edgware Road Tube Station, among other locations. Aesthetics aside, green walls are credited with reducing air pollution and improving air quality.

8 Algae-powered building

To prove the dynamism of the "living wall" concept, look no further than Hamburg's International Building Exhibition. Instead of sweet-smelling flowers, the south-facing facades of the zero-carbon apartment complex are laced with green-tinged algae. The

walls' external fabric includes a "bio-skin" of hollow grass panels on which the algae photosynthesizes and grows. Periodically, the algae is harvested from the walls and fermented in a biogas plant to produce electricity.

9 Smart rubbish bins

Forget gas-guzzling dumper trucks and smelly skips. City authorities around the world are now turning to solar-powered "trash compactors" to keep litter off the streets. The 150-gallon-capacity rubbish bins are equipped with a motor that pushes down the rubbish when it nears the top. The motor is powered by solar panels embedded in the lid. The newest BigBelly bins include a wireless monitoring system that notifies rubbish collectors when the bins are full.

10 Spray paint

Finally, desperate times may sometimes call for desperate measures. That's clearly what was going through the minds of authorities in Chengdu, one of China's fastest growing cities. To brighten up the place, the municipal landscaping department has taken to spraying the yellowing grass green. Use of the non-toxic green spray has now spread to Tianjin and a host of other cities in China's north-west.

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3 Giving information

Explain the quirky ideas in your half of the article to someone who read the other half.

4 Hyphenated compound adjectives

- Match the compound adjectives, 1 to 12, with the things they describe, a to l.
- Which of the quirky ideas are the phrases used to talk about?
- How many more hyphenated compound adjectives can you find in the article?

- | | |
|-----------------------|----------------------|
| 1. climate-controlled | a. trash compactors |
| 2. UK-based | b. biomes |
| 3. gas-guzzling | c. billboard |
| 4. green-tinged | d. algae |
| 5. industrial-scale | e. flowers |
| 6. jellyfish-type | f. dumper trucks |
| 7. solar-powered | g. glow |
| 8. south-facing | h. facades |
| 9. steel-framed | i. firm |
| 10. sweet-smelling | j. apartment complex |
| 11. water-producing | k. supertrees |
| 12. zero-carbon | l. version |

5 Expressions

Complete these expressions from the article. Then, use them in sentences of your own.

- _____ in the dark
- a _____ of action
- at the _____ of a button
- come _____ mind
- _____ the rage
- _____ the forefront

6 Discussion

- Which is your favourite quirky idea? Explain why.
- Do you think that any of them will become commonplace? Why? Why not?

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7 Meeting

Your town has enough money in the budget to finance the implementation of one of the quirky ideas in the article. But which one?

Hold a meeting to decide which of the ideas would bring the most benefits to your town. Decide where to install it and any other matters that arise.

8 Webquest

a. Go to *The Guardian* to see images and watch videos of the 'quirky ideas'.

<http://www.theguardian.com/sustainable-business/2015/apr/16/ten-quirky-ideas-for-making-our-cities-more-sustainable>

Research further the two quirky ideas that interest you the most. Share what you found out with a partner.

b. Find out more about how modern cities are evolving by following the link below.

<http://www.theguardian.com/cities/gallery/2015/apr/23/modern-cities-panos-photography-futureofcities-exhibition-in-pictures>

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KEY

1 Warmer

slightly strange

2 Key words

Teacher's note: Divide the class into two groups and hand out half the article (ideas 1 to 5) to one group and the other half (ideas 6 to 10) to the other group. In their groups, students should match the words from the introduction to their meanings (questions 1 to 5), which are the same for both groups. In addition, they should find the key words in part b that relate to their half of the article. Then, they must read and discuss the article with the other students in their group.

a.

1. leftfield
2. upsides
3. sustainable
4. trials
5. dwellers

b.

Group 1

1. in vogue
2. anti-seismic
3. splices
4. luminescent
5. flex
6. kinetic
7. copse
8. canopies
9. absorb
10. disperse

Group 2

1. billboards
2. humidity
3. preserve
4. drawing on
5. facades
6. aesthetics
7. dynamism
8. algae
9. skips
10. embedded

3 Giving information

Teacher's note: Students explain the quirky ideas from their half of the article to someone in the other group.

Students will probably want to end up with a copy of both halves of the article so have enough copies for this.

4 Hyphenated compound adjectives

Teacher's note: You may want to inform your students of the following rule:

With compound adjectives formed using the adverb *well* and a participle (e.g. *well-paid*) or using a phrase (e.g. *up-to-date*), you should *not* use a hyphen when the compound comes after the noun (e.g. *I have a well-paid job* but *My new job is very well paid.*)

a. and b.

1. b – supertrees
2. i – neo-walled gardens
3. f – smart rubbish bins
4. d – algae-powered building
5. l – glow-in-the-dark trees
6. g – glow-in-the-dark trees
7. a – smart rubbish bins
8. h – algae-powered building
9. k – supertrees
10. e – algae-powered building
11. c – water-producing billboard
12. j – algae-powered building

c.

pop-up (parks)
Tokyo-based (engineering firm)
anti-seismic (underground bicycle park)
biomimicry-inspired (technology)
five-millimetre (flex)
man-made (trees)
glow-in-the-dark (trees)
neo-walled (gardens)
algae-powered (building)
150-gallon-capacity (rubbish bins)
non-toxic (green spray)

5 Expressions

1. glow
2. day
3. touch
4. to
5. all
6. at