

Directions:

Read the following text carefully and then translate the underlined segments into Chinese. Write your answers on the ANSWER SHEET. (10 points)

Innovation and research have relied on public participation in science for centuries. It was a musician who discovered the planet Uranus in the 18th century by making his own telescope with mirrors composed of copper and tin. (46)Recent decades have seen science move into a convention where engagement in the subject can only be done through institutions such as a university. Citizen science provides an opportunity for greater public engagement and the democratisation of science.

In the information era, large data sets, small teams and financial restrictions have slowed scientific process. (47)But by utilising the natural curiosity of the general public it is possible to overcome many of these challenges by engaging non-scientists directly in the research process. Anyone can be a citizen scientist, regardless of age, nationality or academic experience. You don't even need any formal training, just an inquisitive mind and the enthusiasm to join one of the thousands of citizen science projects to generate new knowledge and the means to understand a genuine scientific outcome.

(48)Scientists have employed a variety of ways to engage the general public in their research, such as making data analysis into an online game or sample collection into a smartphone application. They've implored citizen scientists to help with bug counting and categorising cancer cells, and even identifying distant galaxies.

This form of accessible science means that great minds are able to join the race to create and develop projects with the potential to change the world. A citizen science-based approach can extend the field of vision and include more ideas and different brains to problem-solve and create, making innovation faster and more effective.

The rise of citizen science has grown alongside the rise of do-it-yourself biology laboratories around the world. (49)These groups of people are part of a rapidly expanding biotechnological social movement of citizen scientists and professional scientists seeking to take discovery out of institutions and put it into the hands of anyone with the enthusiasm.

There are around 40 official do-it-yourself biology centres across the globe in locations including Paris, London, Sydney, and Tel Aviv. (50)They pool resources, collaborate, think outside the box, and find solutions and ways around obstacles to explore science for the sake of science without the traditional boundaries of working inside a formal setting. So is it time to take the Petri dish out of the laboratory and into the garage?