Name(s).....

OFF-GRID!
A SOLAR CHALLENGE COMPETITION

YOUR DESIGN TASK

So far, you have explored how solar energy can be used to help people without access to mains electricity in Gwanda district in Zimbabwe. It is hoped that more 'off-grid' solar technology will be available to more districts in rural Zimbabwe in the future.

Your task is to design an 'ingenious' solar powered solution for people living in rural Zimbabwe when there is no access to mains electricity to deal with one of the following problems:

- Lack of refrigeration to keep vaccines cold at rural health clinics
- Lack of water for farmers to irrigate their crops when they live far from water
- No lighting at night time for farmers who wanting to check on their animals at night time
- No outside lighting in boarding schools to enable children to go to the toilet safely at night time.

You also have a free choice – to develop a solar powered solution to a problem that you have identified through The Solar Challenge.

DESIGN CRITERIA

Practical Action will be looking for ingenious solutions! We also want you to consider the product's:

- **Suitability for the user** - make sure you are designing to meet the needs of the person for whom you are designing
- **Cost** - as you are designing for a community with little extra money, make sure your ideas are affordable
- **Sustainability** - consider the materials you choose and how easy they are to maintain and/or repair.
- **Creativity**

BEFORE GETTING STARTED ON YOUR OFF-GRID! DESIGN

Read through the criteria that the judges will use to score your design entries. Each activity below will be awarded up to 10 marks (where 10 is the highest). Therefore the overall score will be out of 30 marks.

JUDGING CRITERIA

ACTIVITIES AND MARKS	YOU NEED TO COMPLETE
Background research (10 marks) – include: • Reading of *Community case studies* of people from Gwanda • Solar products that already exist	***Design brief research sheet***
Initial ideas (10 marks) – annotate your ideas with how they meet the design criteria including their: • Suitability for the user • Cost • Sustainability (think about the use of materials and whether it can be easily maintained and repaired) • Creativity	***Initial ideas sheet***
Final design idea (10 marks): How well does your design idea fit the purpose for which it was designed? Justify your final idea with comments about how it meets the design criteria.	***Final idea sheet***

Name(s).....

OFF-GRID!

DESIGN BRIEF

In your own words, tell us who you are designing your solar product for and what problem you are hoping to solve.

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DESIGN CRITERIA

What things are important for you to think about with your solar product?

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RESEARCH

Add your research findings in the space below.

You might find the following useful:

- *Community case studies*
- Practical Action's website on life in Gwanda practicalaction.org/plantingforprogress.

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Feel free to continue on to another page.

Name(s).....

INITIAL DESIGN IDEAS

Sketch out any ideas and thoughts you have below.

Annotate your ideas with how they meet the design criteria.

Name(s).....

FINAL DESIGN IDEA

Sketch your final idea below.

Annotate your design showing what makes it fit for the purpose you designed it for, including your design criteria.