This issue of the OpenUK zine focuses on open source how-to guidance. The cover features a globe and various illustrations related to technology and creativity. The tagline reads 'code, build, create, compete.'
Design thinking is a key process in creating projects and apps. It begins with empathising with your users, and learning about your audience, through surveys or interviews. Then, you define a problem that you are going to address in your app and your users’ needs. Next, you ideate and brainstorm possible solutions. That’s what Lesson 10 is all about! It’s a bit different from the others.

Here, you will also want to conduct some market research into your product, have a look at what is already out there and think about how you can make your idea different. Take inspiration from the world around you. Think broadly.

Then create a prototype, a simple version of your app or idea that does only the key functionalities. There are some great prototyping tools such as MIT Appinventor and marvelapp.com.

Finally, you test your prototype, receive feedback from your users and then iterate and repeat the process again to improve your app.

That’s design thinking – and it often works better in a team as teams and collaboration bring different opinions and diversity.
I really liked the **green-screen** feature, because it is great for giving **demos** of robots to a large class at the same time as explaining the code. I really like the addition of the collapse-and-expand feature of the **function** blocks, as it allows me to write bigger programs without filling up the screen. But my absolute favourite feature is the new **melody editor**, because it is now really easy to program in a detailed melody without taking up too much screen space.

**Why is it important that the micro:bit is open source?**

Guy, Perthshire)

The micro:bit is aimed at children learning about computers and electronic devices, and it is important that everything about the device is well described and explained to allow children to learn about it. Being Open Source, information inside it is available and transparent so you can be inquisitive and dig down into the details to learn how things work. You might discover some new hidden features—but also, as you learn more, eventually it will encourage you to contribute your own ideas back into the micro:bit ecosystem. By being Open Source, you can learn new things, and also contribute new ideas too! Many of the pre-built images in the micro:bit were contributed by an 11-year-old girl from my computer club – this was possible because the micro:bit is Open Technology. What kind of new feature will you contribute in the future, I wonder?

In this final Episode, we recognise that during the last 9 Lessons you have become expert coders with the MiniMU glove and pass control of the innovation process over to you. To quote Barack Obama: “Computers are going to be a big part of our future... and that future is yours to shape”. Let’s look at how you start shaping that future.

The first stage is to consider the process of **ideation**. **Idea-tion** is the process of coming up with new ideas, developing them, and communicating them to other people. This usually starts by developing a project brief which is the document that outlines the details of the problem that you are trying to solve.

Next, we identify our team and their roles before moving onto the process of **brainstorming** ideas together. Finally, we **evaluate** our idea against criteria which has been agreed, before deciding on our final product. Remember, if we discover that an idea isn’t working then we can **loop** back around through the **ideation** process.

Once **ideation** has been done, **prototypes** have been created (a sample of the products) and **testing** has been completed, the product is created. It can then be brought to life and improved using the Open Source communities.

Write your code, **attribute** it to yourself, and **package** it with a copyright notice and licence which allows **modification**. Next, publish it on a public forum/repository such as GitHub. The Open Source community will then develop it further by providing feedback, **bug-fixes** and adding new **features**.

Isn’t the power of collaboration amazing!

Remember the magic of Open Source as you enter your career journeys in the future!

---

David Whale is a Software Engineer
In Ezine 9, we saw how several developers can work together on the same project.

However, collaboration can still be a challenge, even with tools such as `git`. To further improve productivity in a real world environment, specific development practices have been widely adopted by the developer community over the last 15 years. Developers that follow the mindset described by these practices are said to use **agile development**.

Let’s consider an essay on how great it is to have dogs as pets. We will write it as a team with the **agile mindset**. A standard approach suggests to write our whole text and then share it. **Agile** recommends an increase in communication by writing and sharing our work section by section. This allows a team to iterate together and easily identify interesting parts that may need more work!

Because the work is constantly updated, it is easy to face changes. For instance, if the professor changes the essay title to cats instead of dogs, we can more easily update our text. Surprising, this may happen in real business projects (it is hard to predict everything from the start)!!

To summarize, small **iterative** updates and communication with team work really help to solve on big problems!!

In the last ten years we have seen an incredible growth in communities around the world. Fitbit, Harley Davidson and of course, Open Source, are fantastic examples of communities.

The reason for this growth is that communities are an amazing coming-together of minds jammed with experience, expertise, and time. When you enable these minds to communicate and collaborate, anything is possible.

The key to building amazing communities is to start simple. Provide a simple place where people can get together online (such as forum, Facebook Group, Slack channel, or mailing list). Then, make it easy for them to make a contribution. Contributions vary from community to community and can include writing code as we have seen on this course, creating blog posts, running events, writing documentation, translating things, or anything else.

When people join your community, engage with them, keep them excited and where possible, reward them. Give them a reason to come back!

The main reason people come back is because the community is meaningful, and they make friends. Focus on both and you will build an amazing community.

Communities are the future and you are getting involved at the most exciting time I have ever seen.

Good luck building your own communities!

Jono Bacon is a Community and Collaboration Strategy Consultant and Author

Mihail Popov is a Software Researcher
WELL BEING

HOW SPORTS BOOST CREATIVITY

Matthew

8

What’s your passion, or favourite hobby? Whether it’s playing instruments, building robots, fashion, making YouTube videos, or anything else, sport can help you do it better!

Exercise has a long list of benefits – with one being an increase in individuals’ creativity.

Creativity allows you to think outside the box, be a problem-solver, and shape a life that you love. Creativity essentially means coming up with new ideas and ways of doing things. Life is constantly changing and being able to adapt is definitely key to success!

However, being creative isn’t always easy: it’s a skill to be developed over time... like a muscle that gets stronger the more you train it! There are many ways to boost creativity, but in my opinion, sports are among the most fun.

On a scientific level, physical stimulation releases beta-endorphins, those “happy hormones” that make you feel good and be positive.

Exercising also boosts serotonin, a neurotransmitter that makes you sleep better, allowing your brain and body to repair and recharge and wake up feeling more alive, and fresh. This increases memory and improves mental health – both are greatly beneficial to your creativity.

Sports also enhance discipline (the ability to stick to the task at hand), and communication as you are interacting with teammates. They also keep you present and focused.

These are all key factors in boosting creativity.

Matthew Springer is a Founder

Matthew

Wise words from the bit brain

The free magazine full of new projects for the micro:bit. Written by community contributors, micro:mag shares top tips, ideas, news and reviews for micro:bit fans.

Click here to link to mags

openuk.uk
Across
2. What is a group of people who have shared interests or attitudes, or who live in the same place called?
3. What is another word for a note-taker, or a place called?
4. What is a group of people who share a common goal called?
5. What is using imagination and artistry or original ideas to make or invent something called?
6. What is a thought or inspiration to create or do something called?
7. What is another word for letting go?
8. What is a word for someone who is very good with words, or uses language extremely well?
9. What is an improvement or intensification in quality or value called?
10. What is another word for letting go?
11. One winner will be drawn from completed entries received by 10 September. No cash alternative. UK residents only.
12. What is working together with others to achieve a common goal called?
13. What is a word that describes a group of players fighting one side in a competitive game or sport?
14. What is a formal choice between two candidates or courses of action called, which is usually made through a ballot or a show of hands?
15. What is a word that is better than it was before?
16. What is a word that can be used in these sentences: I am ___ a goal. The teacher is ___ an essay.
17. What is a word that describes a group of players fighting one side in a competitive game or sport?
18. What are the Muses in Ancient Greek mythology?
19. What is another word for letting go?
20. What does Mr Illustrator do?

Down
1. What is using imagination and artistry or original ideas to make or invent something called?
2. What is working together with others to achieve a common goal called?
3. What is an online magazine called?
4. What is another word for letting go?
5. What is a thought or inspiration to create or do something called?
6. What is it called when something is better than it was before?
7. What is another word for letting go?
8. What is a word that can be used in these sentences: I am ___ a goal. The teacher is ___ an essay.
9. What is a word that describes a group of players fighting one side in a competitive game or sport?
10. What are the Muses in Ancient Greek mythology?
11. What is another word for letting go?
12. What does Mr Illustrator do?
13. What is a formal choice between two candidates or courses of action called, which is usually made through a ballot or a show of hands?
14. What is a word that describes a group of players fighting one side in a competitive game or sport?
15. What is a thought or inspiration to create or do something called?
16. What is another word for letting go?
17. What is a word that is better than it was before?
18. What is a word that can be used in these sentences: I am ___ a goal. The teacher is ___ an essay.
19. What is an online magazine called?
20. What are the Muses in Ancient Greek mythology?

Win a Huawei MatePad T8

To enter the prize draw you must submit the completed Crossword and Word Puzzle from Ezine1, by email to ezine10@openuk.uk. All entries are subject to our terms and conditions which you can read https://openuk.uk/ezine-10-comp-terms-and-conditions/
By entering you agree to them and confirm that you have parental or guardian permission if you are under 16 years of age. One winner will be drawn from completed entries received by 10 September. No cash alternative. UK residents only. Judges decision is final. No correspondence will be entered into. Surname and county of prize winners will be made available on request.Promoter, OpenUK
Contribute your unique skills to a shared goal and be part of the OpenUK community! Join us and make a difference.

OpenUK MiniMU INSTRUCTIONS

LESSON TEN

Roman would like to create a team and enter an amazing competition. He needs one more person to help him, and he’s hoping you’ll join. He’s certain it’s possible to come up with a fab idea using all the coding skills we’ve been learning these last few weeks.

There is a fantastic poster that will help you to come up with ideas and turn them into a new product prototype. Are you up for the challenge, do you want to join the team?

In today’s lesson you will work through the steps in the poster to come up with ideas for a project.

By doing this you will learn how to:

☐ look at a project brief and decide how to approach it;
☐ build a team by assigning team roles to everyone;
☐ use an ideation process to generate lots of ideas quickly;
☐ evaluate your ideas and sort them into order;
☐ select the best idea to take forward to the next stage.

You will use all your existing knowledge and experience about the micro:bit and the MiniMU glove, to help guide your ideas for a glove.

You will also learn how open source communities collaborate together to build products.

You will need:

☐ your assembled MiniMU glove;
☐ an on-screen or printed version of our ideation poster;
☐ pens, paper, and some post-it notes or cut-up paper;

Don’t forget to have a list of your existing projects from the course to hand, they will be really useful to inspire and guide the idea generation process.
OpenUK MiniMU INSTRUCTIONS

LESSON TEN

Figure 1: The project brief.

Figure 2: Team Roles.

Figure 3: Word list.

Figure 4: Idea categories.

Figure 5: Idea Bank of new ideas generated.

Figure 6: Evaluation criteria.

Figure 7: Scoring system.
OpenUK MiniMU INSTRUCTIONS
LESSON TEN

Figure 8: Sorting and selecting the best idea.

Figure 10: Ronan receives an email from Rhys.

Figure 9: Incoming email!!!
Figure 12: The 'configure' function has all the constants.

Figure 13: The 'sense' function is just like from the Light Glow.

Don't forget, the .hex file that Rhys sent us is downloadable from our website too - try it out, adapt it, share it back, be an open source hero!

Figure 14: The 'get freq' has javascript inside it!!

Figure 15: The circular cycle of Open Source Collaboration
OpenUK MiniMU INSTRUCTIONS

LESSON TEN

Additional Information

1. THE BRIEF
   - Using the MiniMU Glove
   - A creative idea
   - Work collaboratively as a team

2. BUILD A TEAM WITH A PURPOSE!
   - Look at the project brief
   - Assign team roles
   - Start with a word-list
   - Use categories (music, wellbeing, communications, games)

3. ROLES
   - Timekeeper – keeps track of time
   - Wordsmith – shouts out the words
   - Project Manager – keeps the team focused on the brief
   - Scribe – writes down the ideas

4. IDEATION
   - Timekeeper starts the clock
   - Wordsmith shouts out words
   - Team discusses, new ideas are generated
   - Scribe writes down new ideas
   - One idea per post-it note
   - Project Manager keeps team on track
   - Time up!

5. EVALUATION
   - Assign scores
   - Add up scores
   - Sort post-it notes, in order of scores

6. SELECTION
   - Choose the idea with the highest overall score
   - Build a prototype
   - If it turns out a bit hard, try next highest scoring idea
Worked example of scoring an idea

<table>
<thead>
<tr>
<th>Scores</th>
<th>1 NO</th>
<th>2 Problem</th>
<th>3 Yes</th>
<th>4 Definitely</th>
</tr>
</thead>
</table>

**COMPASS**
- A. SOLVE A PROBLEM
- B. USER WILL GET IT
- C. NEW IDEA
- D. WE HAVE THE GAINS

TOTAL = 3 + 4 + 4 + 3