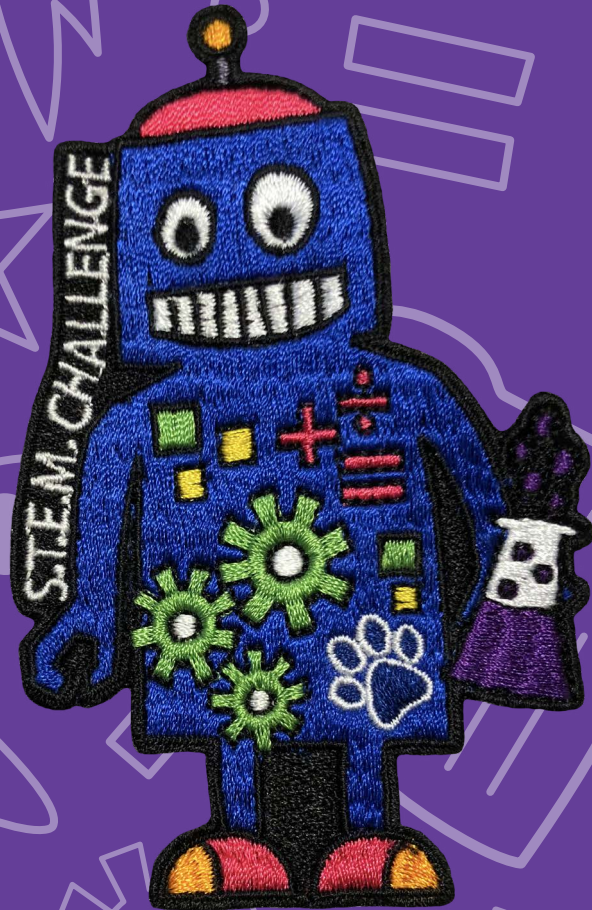


**PAWPRINT
BADGES**

S.T.E.M. Challenge



Blast off with Science, Technology, Engineering and Maths!
Ready for some foody experiments or some ground breaking builds? TJ-5 the robot is the winning design from Teddy Johnson in our 2019 Design Competition.

For even more programme ideas check out our 'STEM' board over on www.Pinterest.com/PawprintFamily

#AdventureForAll
www.PawprintFamily.com

Meet the FAMILY

Hi there! We're Charlotte & Jamie, the husband and wife team behind the Pawprint Family and we believe in #AdventureForAll.

It's our mission to help leaders, teachers and parents save time by providing ideas and opportunities to help them deliver everyday adventure and skills for life. We do this through our family of brands; find out more below and head to the website for your next adventure!



PAWPRINT BADGES

Pawprint Badges provides thousands of free activity ideas and resources to help leaders, teachers and parents deliver fun and adventure.

Every activity helps you share skills for life and is linked to one of our pawesome embroidered badges. Build your collection and celebrate adventures, new skills and knowledge gained.

PAWPRINT TRAILS

Pawprint Trails are treasure-hunt style walks around locations in the UK. Solve puzzles, track down the answers and explore everything our great country has to offer.

From historical sights to popular culture discover something new or rediscover a love for where you live then collect the badge to remember your adventures!

Whether you're looking for the perfect addition to your next family holiday or a few hours of fun with friends; each trail can be completed in a few hours or extended with our activity suggestions in to a weekend or a week's worth of fun!

PAWPRINT TALES

Pawprint Tales are fully illustrated stories that can be enjoyed by the whole family. Join Alfie (our fox-red Labrador) on his adventures around the UK - solving puzzles, turning detective and making new friends. With twists and turns, every tale is an opportunity to discover new places, people and history without needing to leave the comfort of your own home.

Enjoy Pawprint Tales alongside your Pawprint Trails or as a standalone adventure!

PAWPRINT TRUST

Every brand in the Pawprint Family supports the Pawprint Trust with a percentage of profits from every sale providing grants to young people. We're passionate about enabling young people to access life changing adventures.

Share your adventures and join us over on our social channels for even more adventures and a nosy behind the scenes at Pawprint HQ!



@pawprintfamily



@pawprint_family

HOW TO: Use Your Challenge Pack



This Challenge Pack has been divided into 4 sections: Craft, Food, Games and Other. In order to help you provide a balanced and varied programme for your young adventurers we recommend that the following number of activities are completed by each age group:

Age 3 - 5						
Age 5 - 7						
Age 7 - 11						
Age 11 - 14						
Age 14 - 18						
Age 18+						

Craft

Food

Games

Other

PICK

Leaders, Teachers & Parents
Award yourselves a badge for supporting your young adventurers in their activities!

TOP TIPS

- Adapt activities as necessary to meet your needs.
- Add your own activity ideas or develop them into projects.
- Use what you have; don't buy in lots of new materials/equipment.
- No need to send us evidence, responsible grown-ups decide when the badge has been earned.
- One challenge badge can take as long as you like; from a few hours to days or even a full term!

Terms of Use

By downloading or purchasing this resource you agree to our terms of use as outlined below. As a husband and wife team we work hard to keep all of our resources and activity ideas available free of charge; we can only do this with your help.

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Use this resource with your young adventurers.	Redistribute or sell this resource in any way, shape or form.
Direct people to this resource online by sharing our website links.	Upload this resource to a website for download.
Tell your friends/family/colleagues about us!	Copy or modify any part of this resource to share with others either for free or for sale.
Share photos of you enjoying your adventures with us on social media.	Use any text, graphics, content or fonts without our written permission.

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info@pawprintfamily.com

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Craft

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- ⚙️ Create an umbrella to keep your toys dry. What materials are good to use and which aren't? Why is this?
- ⚙️ Discover colour mixing and create a colour spinner disk.

How?

Cut a circle of card and divide it into thirds like cutting a pizza. Colour each third in 1 of 3 colours: red, yellow and blue. Push a skewer through the centre of your circle and secure on the back. Spin your disk like a spinning top and see the colour mixing magic.

- ⚙️ Design and make a maze using a paper plate and straws. Did you know there are only 10 basic types of maze?
- ⚙️ Build a robotic hand using paper, straws and string. Check out how prosthetic hands and joints are made and research robotics.
- ⚙️ Craft some jewellery from silver clay.

Did You Know?

The chemical symbol for silver is Ag coming from the Latin word Argentum. Silver is also one of the few words in the English language that is nearly impossible to rhyme.

- ⚙️ Candles burn at 1000°C; make your own candles using wax beads or sheet bees wax.
- ⚙️ Make paper chain decorations using only one sheet of paper. How long can you make your chain? Why not have a competition?
- ⚙️ Create your own peg board using wood and nails. Practice your DIY skills then use string to draw a picture or pattern by winding it around the string. What geometric shapes have you created?
- ⚙️ Potato print your own wrapping paper using geometric shapes.
- ⚙️ Have a go at pottery painting and watch the colours change before and after being fired in the kiln!
- ⚙️ Code your own drawing robot and make some art.
- ⚙️ Make a paper plate sundial.
- ⚙️ Mix your own slime!



Food

**PAWPRINT
BADGES**

- ⚙️ Create a solar oven and toast your own s'mores.
- ⚙️ Build a tower from spaghetti and marshmallows.

Why?

Though this may seem simple lots of lessons can be learnt from this old favourite. Working and communicating in teams can build resilience, communication, listening and teamwork skills whilst also discovering which shapes make the strongest structures. Afterwards you have a tasty marshmallowy reward too!

- ⚙️ Build a Pringles® ring...not sure what this is? Take an internet search and prepare to be amazed!! A true test of engineering ability.
- ⚙️ Create your own erupting lemons by slicing across the middle to expose the segments, fill the segments with washing up liquid and food colouring then sprinkle with bicarbonate of soda.
- ⚙️ Mix your own Fibonacci lemonade rainbow.

How?

The Fibonacci sequence is a sequence of numbers where each number is the sum of the two preceding it: 1, 1, 2, 3, 5, 8, 13, 21, 34... To make a rainbow lemonade: fill a glass with ice and mix some simple syrup (1 cup of sugar to 1 cup of water). Mix each layer as follows: layer 1 - 1 tsp. lemon juice, layer 2 - 1 tsp. simple syrup, layer 3 - 1 tsp. lemon juice, 1 tsp. simple syrup, layer 4 - 1 tsp. lemon juice, 2 tsp. simple syrup, layer 5 - 2 tsp. lemon juice, 3 tsp. simple syrup, layer 6 - 3 tsp. lemon juice, 5 tsp. simple syrup, layer 7 - 5 tsp. lemon juice, 8 tsp. simple syrup. Add food colouring to each layer if desired.

- ⚙️ Make magic and make an eggshell disappear by leaving an egg in vinegar for 24 hours. Find out what's happened to the shell.
- ⚙️ Mix your own ice cream in a bag (for the recipe check out the Astronaut Adventures challenge pack).
- ⚙️ Investigate how and why bread rises and bake some.
- ⚙️ Create your own honeycomb and watch the reaction.
- ⚙️ Churn your own butter from cream. We'd recommend using double cream for a good result.
- ⚙️ Pop your own popcorn and enjoy watching the mini explosions. Find out what's happening in your popcorn pan and the science behind it.



Games

**PAWPRINT
BADGES**

- ⚙ Race against the clock or another team to build a water slide or shoot to get water (or balls) from one place to another.
- ⚙ Have a go at rock stacking. How tall can you build your rock tower? There are world championships for this, take a look and see how others do it.
- ⚙ Create a rocket launcher and have a competition to see how far you can fly your rocket.
- ⚙ Fold your own paper plane. How far/fast can it travel?

Did You Know?

The record flight for a paper plane is 69.14 meters (226 feet 10 inches) and was set on 26th February 2012. The plane was constructed from a single sheet of uncut, A4 paper; designed by John M. Collins, flown by Joe Ayoob.

- ⚙ Build your own marble racers and race them with friends.
- ⚙ Pioneer your own cross bow or catapult. How far can you fire an object? This can be using lolly sticks, we're not expecting you to go full scale!
- ⚙ Play a competitive round (or two) of Countdown with numbers; using a series of smaller numbers to achieve a bigger number mathematically, using each number only once.
- ⚙ Have a game of darts and test your maths skills. Count up or count down whichever you like.
- ⚙ Play a game of Yahtzee or another dice game to test your maths skills, strategy and planning.
- ⚙ Set up your own domino chain reaction. How long can you make your chain? How many dominoes is that? Is there a perfect distance between the dominoes to get them to topple each other over. Watch some videos of domino chain reactions on-line.
- ⚙ Create your own card game using famous scientists, mathematicians, or engineers. Use our Trump Card Template resource to help you.
- ⚙ Practice strategy with games like battleship, mastermind or chess/draughts.
- ⚙ Test your skills with some match stick logic games, i.e. use 9 matchsticks to make as many triangles as you can in 1 minute.



Other

- ⚙️ Visit your local science museum.
- ⚙️ Grow your own salt crystals from salt water.
- ⚙️ Make your own compass and find North. What's the difference between magnetic north and true north? Find out.
- ⚙️ Explore electricity by building circuits, wiring a plug or creating your own static charge.

Did You Know?

Lightening is a naturally occurring electrostatic discharge and strikes at speeds of up to 210,000 km/hour and reaches temperatures of up to 30,000°C.

- ⚙️ Create a water xylophone using glass bottles filled with different levels of water. Add food colouring and see if this changes the sound.
- ⚙️ How do you get an egg in a bottle? You will need: a hard boiled egg (peeled), wide mouth glass bottle, matches, paper.
- ⚙️ Take photos using a film camera and have a go at developing them yourself or experiment with light sensitive (sunography) paper.
- ⚙️ Galileo developed telescopes and discovered the moons of Jupiter; visit a planetarium or go stargazing.
- ⚙️ Make a cloud in a jar.
- ⚙️ Create a parachute for an egg. Which materials work best and why?
- ⚙️ Have a go at building your own robot. It doesn't have to be electronic, you can create moving models with paper.
- ⚙️ Find out about some famous scientists, engineers or mathematicians and share your findings in an interesting way.
- ⚙️ Discover how your favourite or most used gadget was invented. Sometimes things get invented by accident, other times they're invented out of necessity.
- ⚙️ Find and undertake a science experiment of your choice.
- ⚙️ Take part in a STEM competition to test your skills as part of a team.

Adventure Complete?

Reward your young adventurers with their S.T.E.M. Challenge badge to mark their achievements! Head to the website to bag yours, download certificates and discover even more adventures!



Create a Keepsake!

Experienced adventure? Made memories? Then it's time to create a keepsake! Our Pawprint Family camp blankets are the perfect place to sew your badges and look back on them for years to come.



Personalise it!

Got your camp blanket? Then it's time to make it yours! Our alphabet badges are big, bright and bold...the perfect addition to your camp blanket, hoodies, bags and more. What will you personalise first?



Even More Rewards!

We're all about added value here at Pawprint Family. In addition to the 1000s of free activity ideas and resources you'll find loyalty stickers in every order and you can claim Children's University learning hours too!



Subscribe to the **Tribe News** for all the latest adventures direct to your inbox!

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