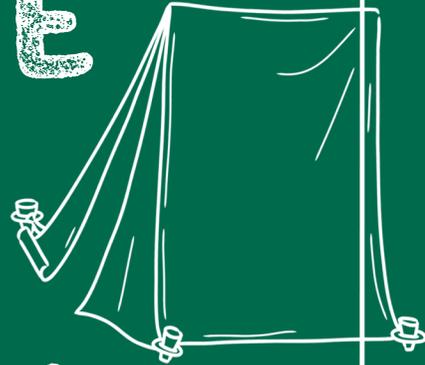# PHIPPY'S FIELD GUIDE TO WASM

Hearing a knock, Zee swings open the door and shouts, "Aunt Phippy! Blossom the Wasm Possum is here!"

With an excited grin, Blossom asks if everyone's ready for the big camping trip.

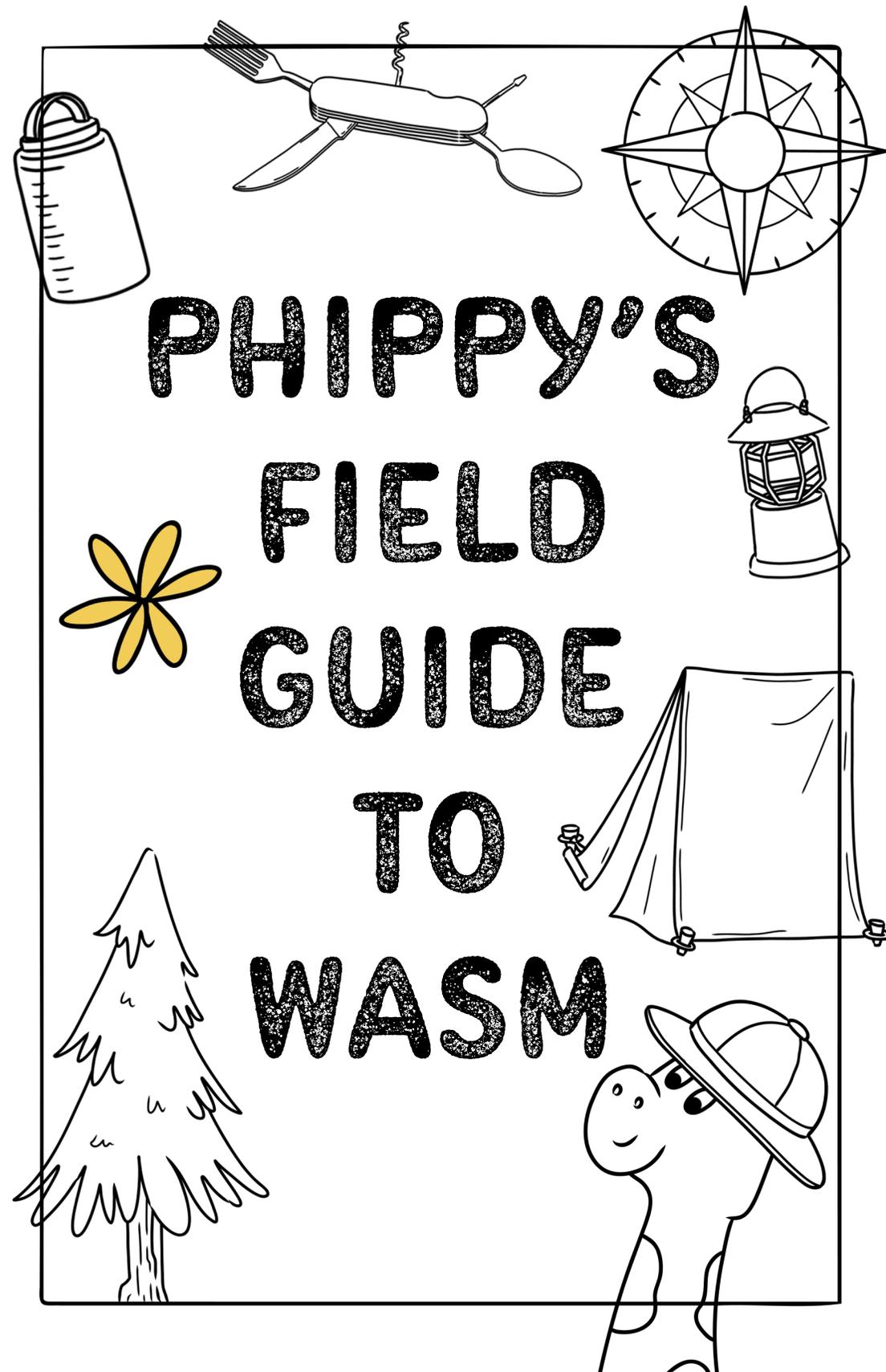Brought to you by...

FERMYON

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Illustrated by: Loretta Ford

Designed by: Karen Chu

PHIPPY'S FIELD GUIDE TO WASM

CAMPING TRAILER

binary format

As they get ready to load their camping gear, Blossom takes on the task of packing everything efficiently into the trailer.

Zee tries to pack a lamp but Blossom explains, "Let's not bring things we can't use — the trailer should only contain things we need.

WebAssembly (Wasm) is a binary format for applications. Like how Blossom's trailer holds any kind of supplies, it can contain any kind of program.

TRAILER HITCH

multi-platform

Driving up the winding switchback mountain roads, Phippy notices something familiar–"Look at all the cars! They're so different but all the trailers are the same."

Blossom nods and responds, "Indeed. This trailer is standardized – any car can tow it."
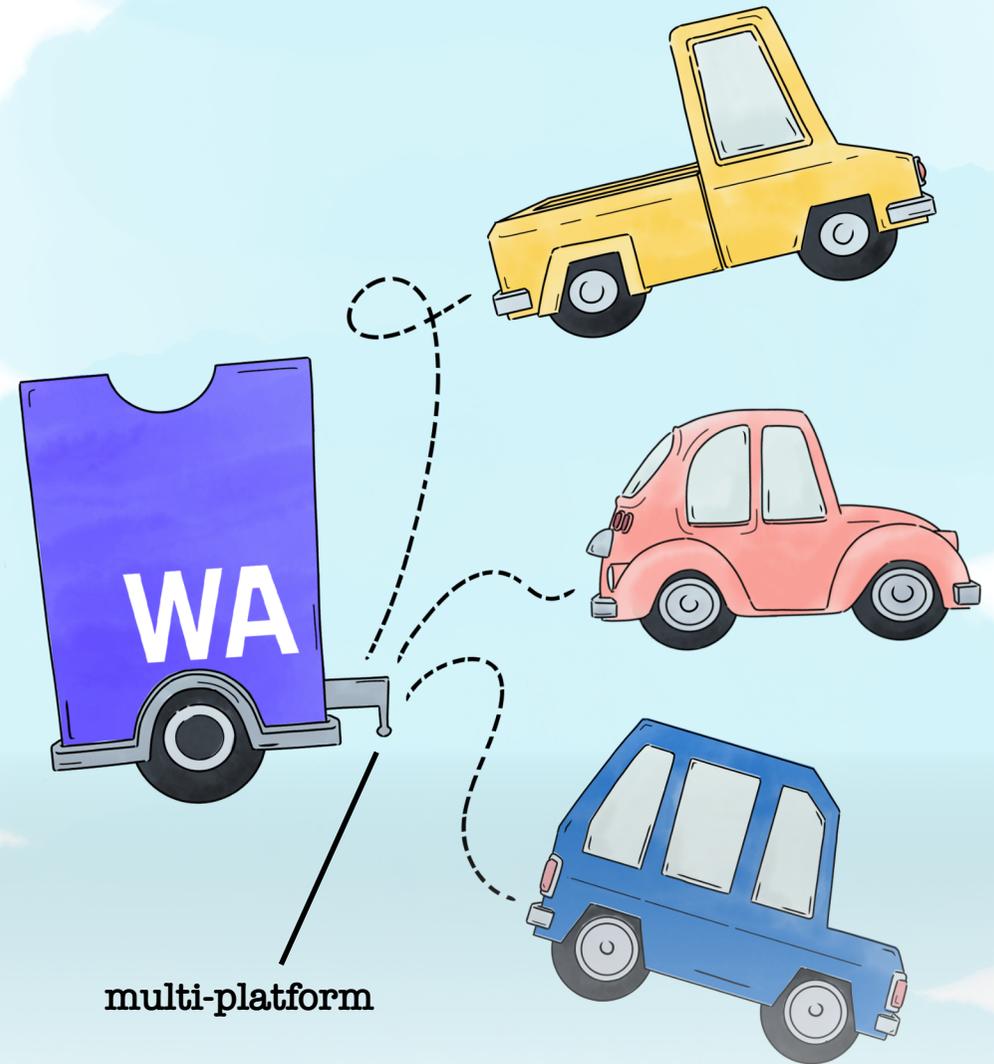
A trailer hitch can be attached to lots of different cars. Similarly, Wasm can run on many operating systems (including Windows, Linux, and macOS) as well as many different system architectures (such as Intel and Arm).

HIKING SHOES

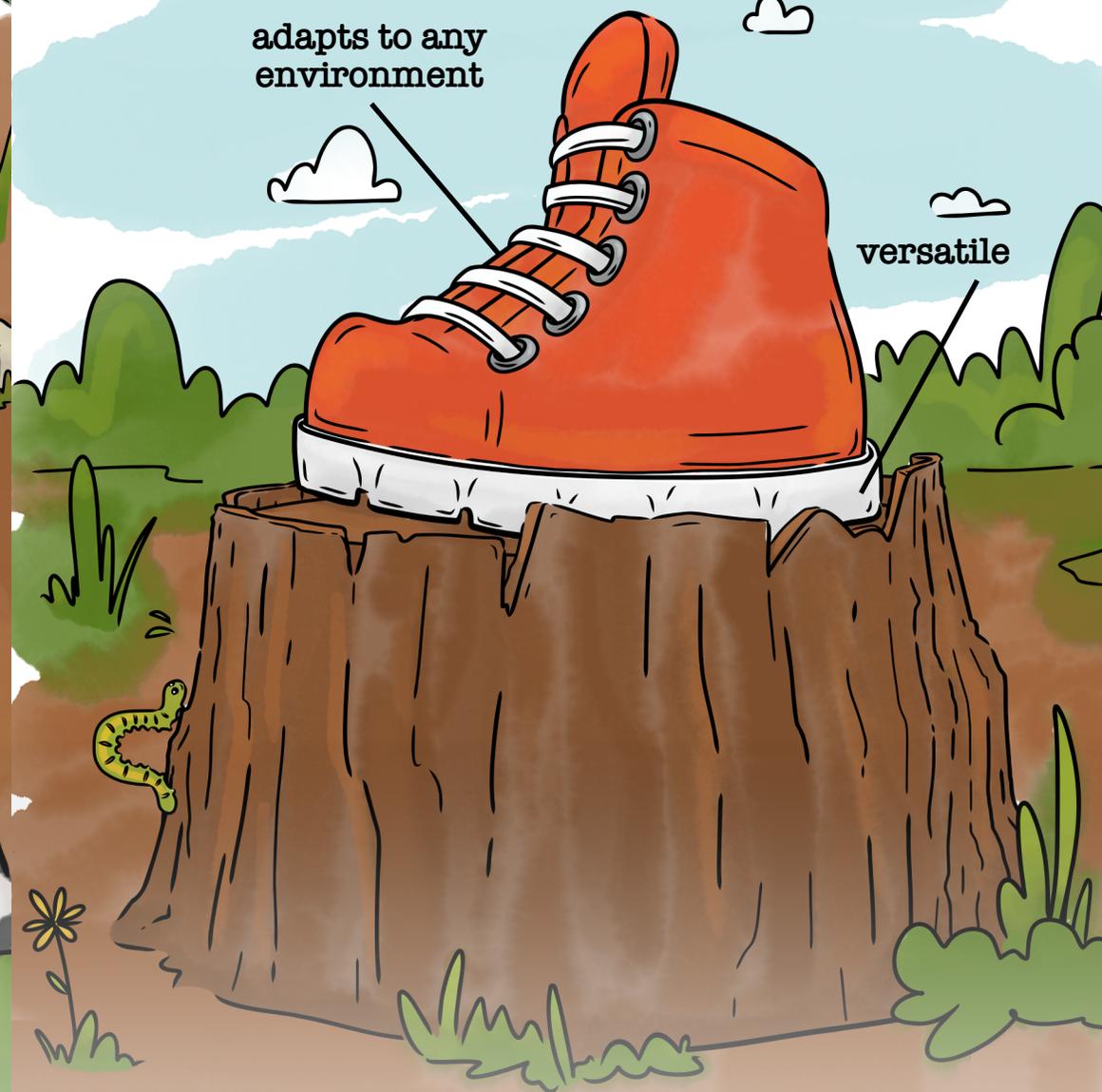adapts to any environment

versatile

Noticing Phippy and Zee's rather bare hooves, Blossom hands each of them a pair of hiking shoes. She explains, "These will keep your feet dry, provide good traction, and give ankle support so you're set for any environment!"

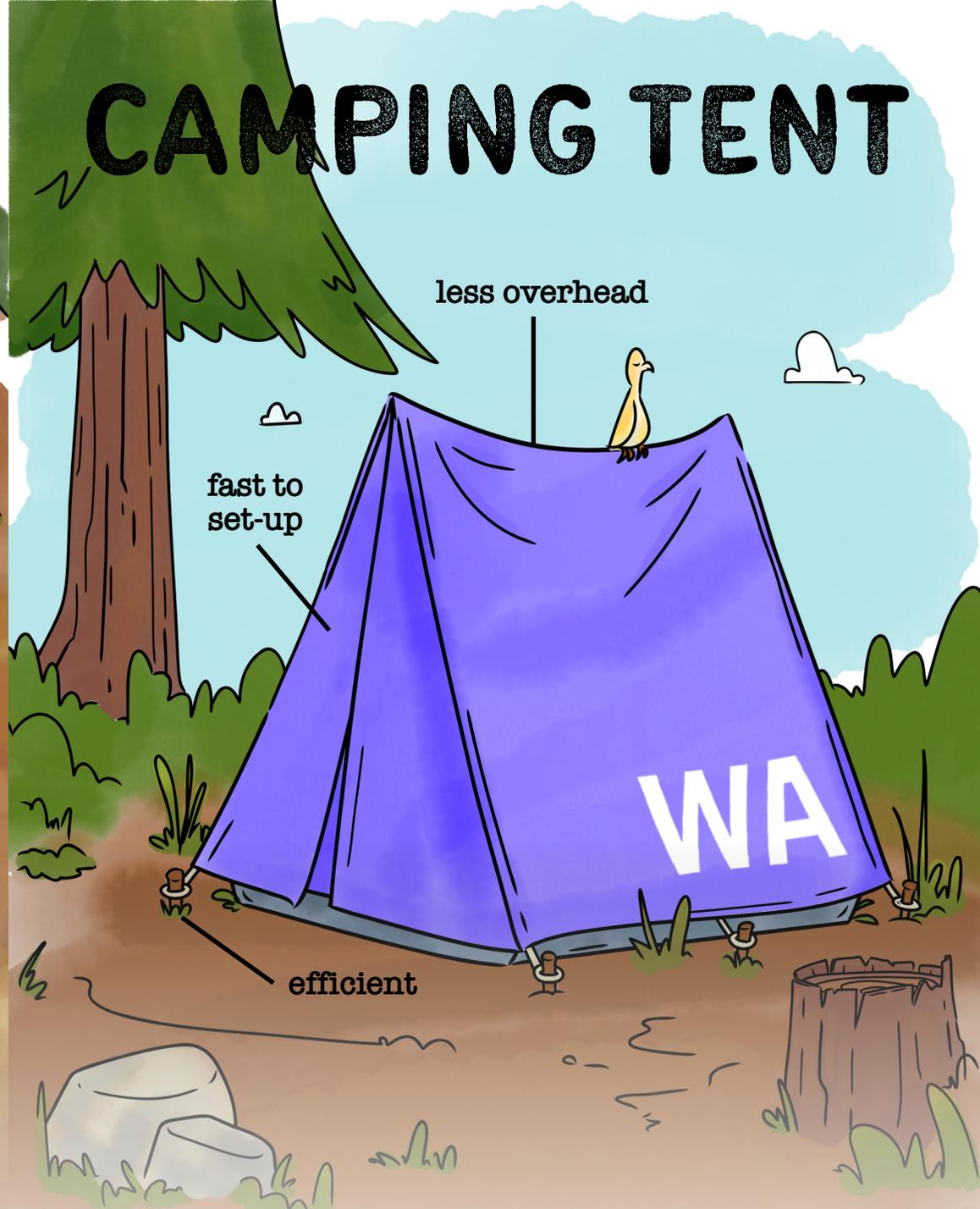Zee passionately shouts, "Red! My favorite color!"

Wasm was originally designed for the browser. However, like a good set of hiking shoes, Wasm is versatile. It is not uncommon to find Wasm in serverless, plug-ins, embedded, and cloud environments.

CAMPING TENT

less overhead

fast to set-up

efficient

WA

Struggling to set up their luxurious family-sized tent, Phippy grumbles, "Why is this taking so long?!"

Blossom reacts with a chuckle and tells Phippy, "You don't actually need a big tent! A small one is faster to set-up and can be perfectly sufficient."

Like Blossom's tent, Wasm is fast to get going. While containers may take seconds to start, a Wasm binary can start in a millisecond. Wasm's low resource usage makes these binaries lighter and more portable as well.

During dinner prep, Zee notices Blossom gathering rocks into a circle and is unsure of what's going on.

As she starts arranging the firewood, Blossom explains, "I'm building a fire pit. Fires can be dangerous and need to be contained. Only you can prevent forest fires."

FIRE PIT

untrusted inside

safe outside

Wasm's security sandbox isolates code from the host and from other Wasm binaries. Like the fire pit, even if something bad happens inside, the danger doesn't escape.
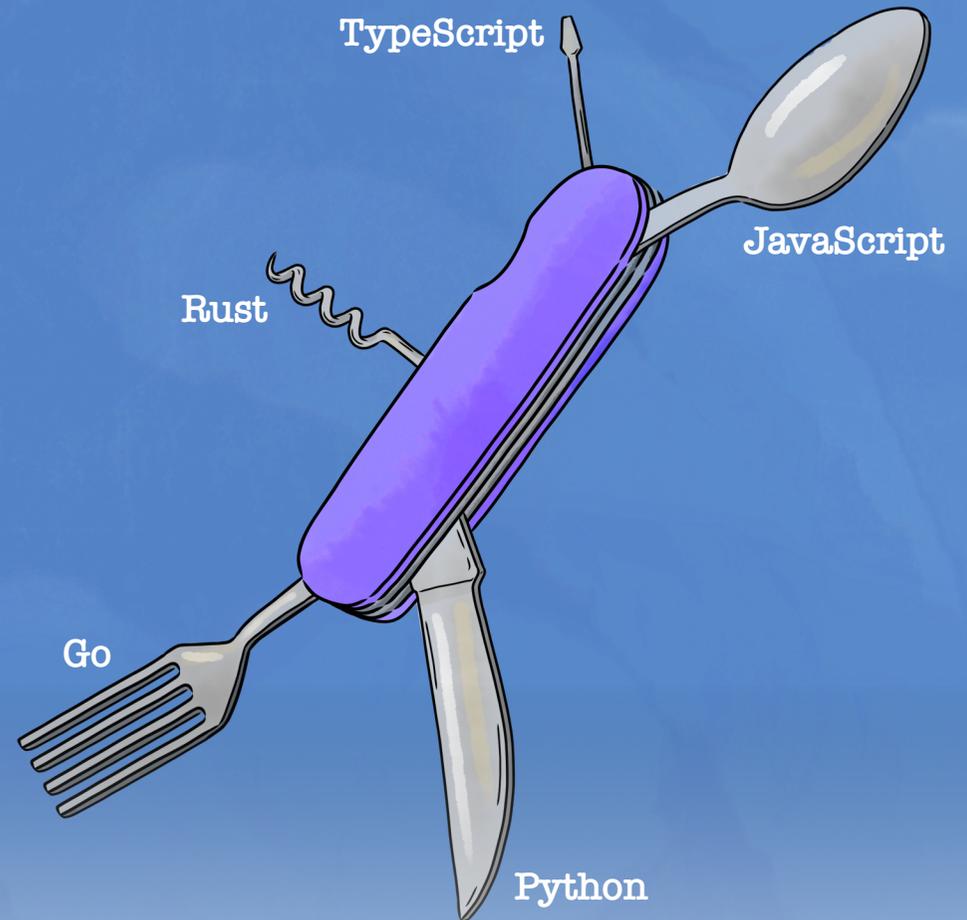
As the trio settles to eat, Zee drops her knife and sighs.

Looking just as overwhelmed herself, Phippy asks Blossom, "How do you deal with having to hold so many things at once?"

Hanging from a branch, Blossom casually responds with, "Well, I've got everything I need in this multi-tool!"

MULTI-TOOL

TypeScript

JavaScript

Rust

Go

Python

The Wasm runtime can execute many different languages such as Rust, Go, JavaScript, C, and Python. Like a multi-tool, it's a versatile tool.

S'MORES

JavaScript app

Go library

Python library

After dinner, Zee is craving dessert and notices a chocolate bar on the log.

Seeing the longing in Zee's eyes, Blossom offers a s'more– "Would you like to build your own?! You take a roasted marshmallow and sandwich it between chocolate and graham crackers. It's so much better if you take three things you like and make them into one thing you love."
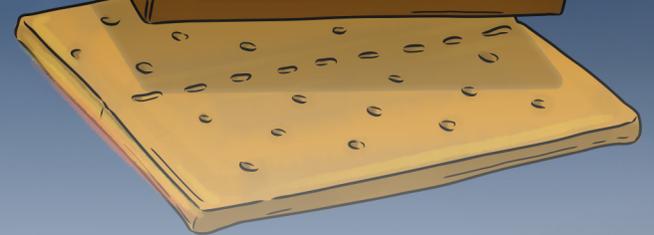
The Wasm Component Model allows Wasm binaries to communicate with each other. For example, you can use a Python library from JavaScript. Like a s'more, you can compose an application from different kinds of components.
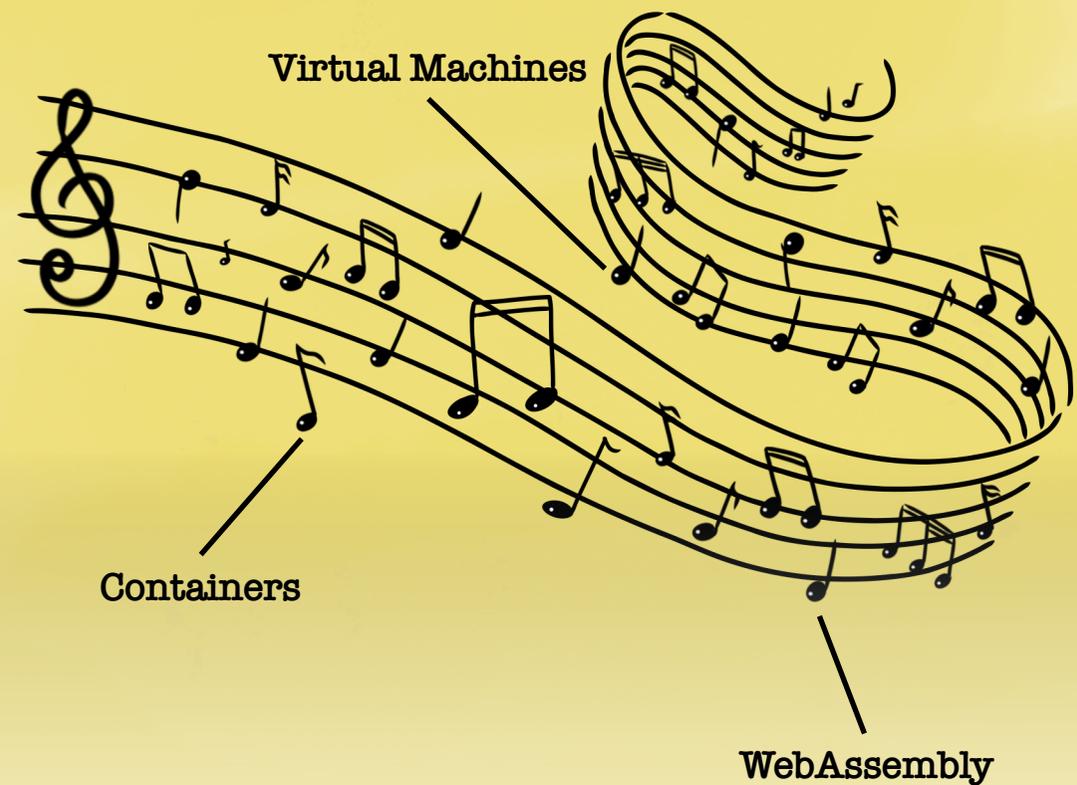
CAMPFIRE SONGS

Virtual Machines

Containers

WebAssembly

As evening falls, some familiar friends from the campsite up the trail arrive with a guitar.

Captain Kube looks on eagerly and asks, "Care to join us for a campfire sing-a-long?"

Zee enthusiastically jumps up and requests, "Can we do 'Everything is Wasm?!'"

Serverless Wasm functions are blazingly fast. But they are not designed to replace virtual machines or containers. Rather, the three together provide a breadth of functionality for creating cloud services.

Tired from their adventures throughout the day, they settle into their respective tents for the night.

Zee tries to doze off but all she can think to herself is…"How can someone so small snore that loudly?!"
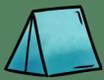
CAMP CONTAINER

CAMP WEBASSEMBLY

CAMP VIRTUAL MACHINES

BLOSSOM LAKE

VISITOR CENTER