

# Lesson 1 - Introduction

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## Wallets and transactions

- What is a wallet
- What wallets are out there
- Using metamasks
- Creating a public-private key pair
- Connecting to ropsten testnet
- Funding via a Faucet
- Sending a ETH transaction

## How ethereum works

- Explaining Etherscan
- Transactions
- Gas
- Blocks
- Consensus and finality
- State changes
- The EVM
- Accounts

## Trying it out

- How uniswap works (briefly)
- See contract on etherscan (briefly)
- Make a swap

## Contract interaction: Token Swap

- What is a state change inside a smart contract operation

## Hands on - Remix

- Remix interface (overview)

## References

<https://remix-ide.readthedocs.io/en/latest/>

## Coding HelloWorld.sol

- Solidity philosophy
- OOP basics of Solidity
- Contract Structure
  - SPDX License Identifier

- Pragas
- Imports
- Comments
- Contract definition
- Variables
- Storage areas
  - Account storage
  - Memory
  - Stack
- Constructor function
- Functions
- Visibility
- Typing
- Return values

## Code Reference

```
// SPDX-License-Identifier: GPL-3.0
pragma solidity >=0.7.0 <0.9.0; contract helloworld { constructor() {}
function helloworld() public view returns (string memory) } < code>
```

## References

<https://docs.soliditylang.org/en/latest/>

## Compiling and deploying

- Compilation parameters
  - Compiler version
  - EVM Version
  - Optimization
- Bytecode
- ABI
- Deployment parameters
  - Environment
  - Account
  - Gas
  - Contract
- Attaching
- Deploying
- Inspect transaction on Etherscan
- Inspect state changes occurred

## Contract interaction

### Part 1

- Contract interactions using Remix
- Viewing state changes through functions

## Part 2

- State changing calls
- What is a "MethodID"
- Attaching "mismatched" contracts
- Why some functions work and others don't because of the "MethodID"

## Homework

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- Create Github Issues with your questions about this lesson
- Read introduction and topics table from references
- Try out some features of Remix you might find useful
- Try out some solidity syntax you may find interesting