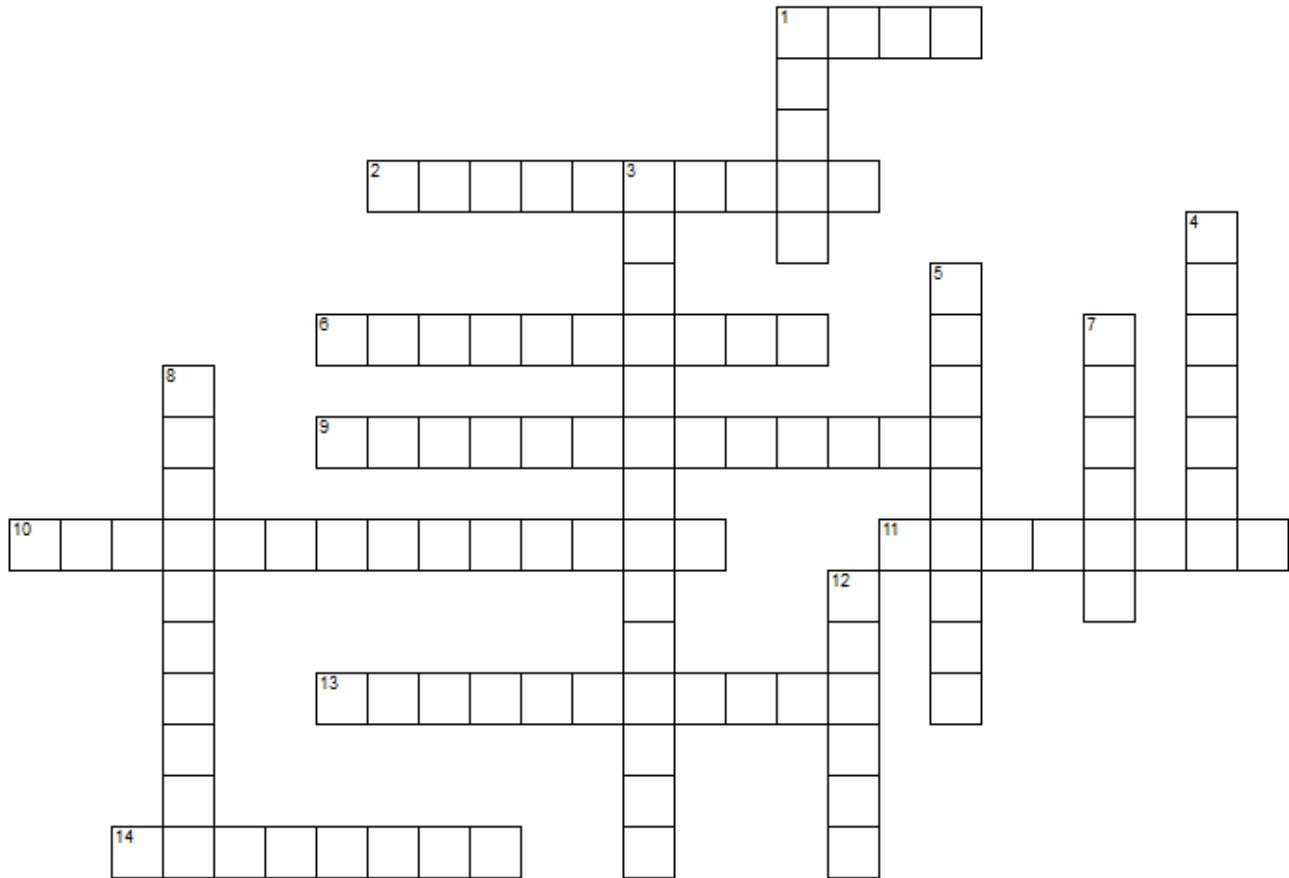# LoRa® Adaptive Data Rate
and Blind ADR

ACROSS
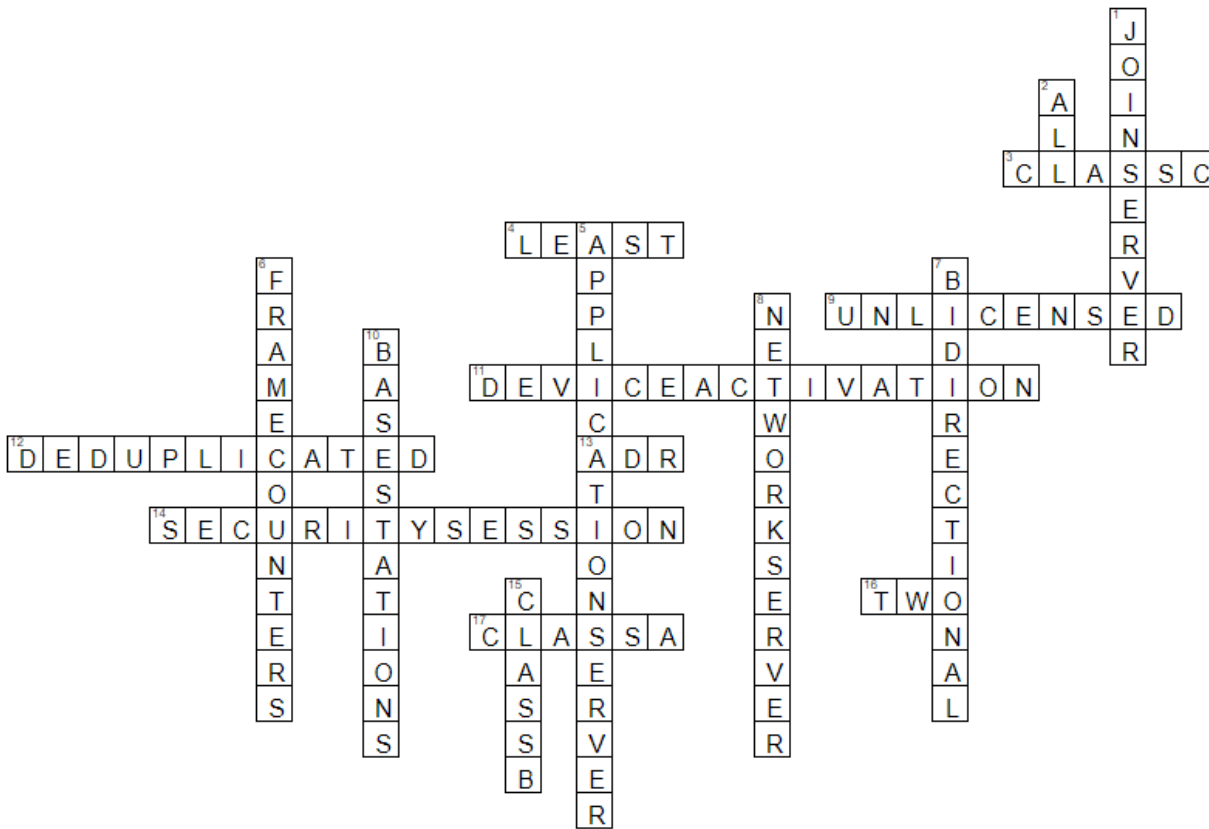
1   Nodes with a high data rate spend ____ time on air
2   Gateway operation type not permitted in the EU
6   Blind ADR __ battery life
9   Determines optimal node data rate
10   End nodes far from a gateway need this
11   ADR can drastically increases this in a network
13   Whether using ADR is appropriate is determined by this.
14   Used to manage data rates for mobile devices

DOWN

1   If the link budget is low you can ____ the data rate
3   ADR Acknowledge delay is expressed in these units
4   SF10 is the ____ spreading factor permitted in the U.S.
5   If the link budget is low the SF can be ____
7   To reduce the range of communication, ____ the link budget
8   LoRaWAN communications are this
12   The lower the data rate, the ____ the range

LoRaWAN Foundations

Across

3 Can always receive downlinks

4 Class A devices use the _____ energy of all device modes

9 LoRaWAN operates in the _____ spectrum

11 Join Server handles _____

12 Multiple messages sent to the Network Server must be _____.

13 Use _____ to control the data rate

14 Consists of the device address, session keys, and frame counters.

16 Every Class A uplink is followed by _____ receive windows

17 Limited as to when they can receive a downlink message

Down

1 Derives session keys

2 _____ LoRaWAN devices must support Class A devices

5 Encrypts and decrypts the application payload

6 Help prevent relay attacks

7 Two-way communication

8 Gateways forward messages to a(n) _____.

10 Another name for "gateways"

15 Send or receive messages at configurable intervals