# CES4KIDS

**From 8 to 12 years old**
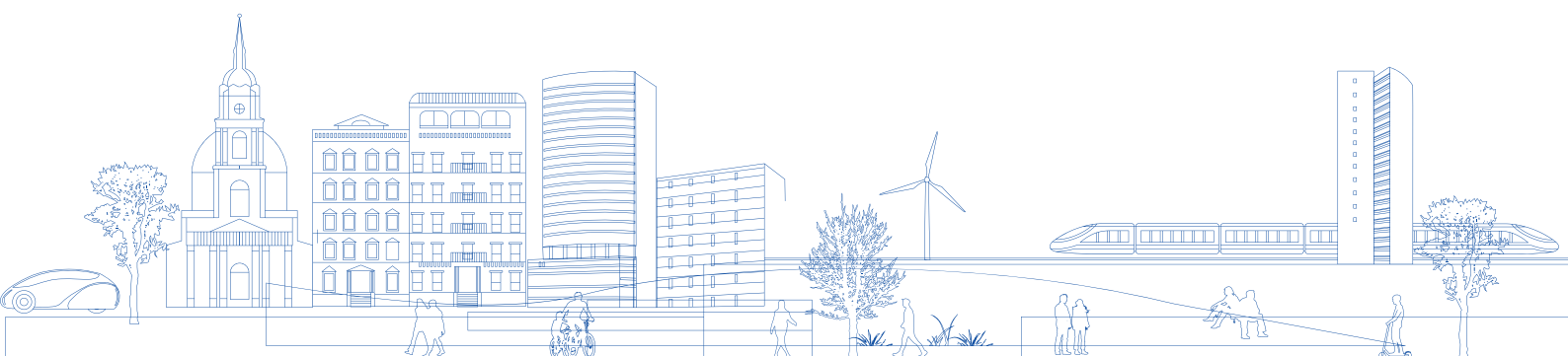
eit Urban Mobility

Co-funded by the
European Union

# Sustainable mobility

**For us citizens, it is essential to move within the city not only to access the different available services and facilities but also to carry out our daily activities. That is why urban mobility is a basic need for the population.**

There are many ways to get around the city, and some are better than others depending on our needs. We can walk, bike or skate, use public transport, such as bus, metro or train, or we can use private vehicles. Our cities must guarantee that everyone has access to quality services and the spaces to do so.

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## How do you get to your school every day?

Walk

Private vehicles

Active transport

School bus

Public transport
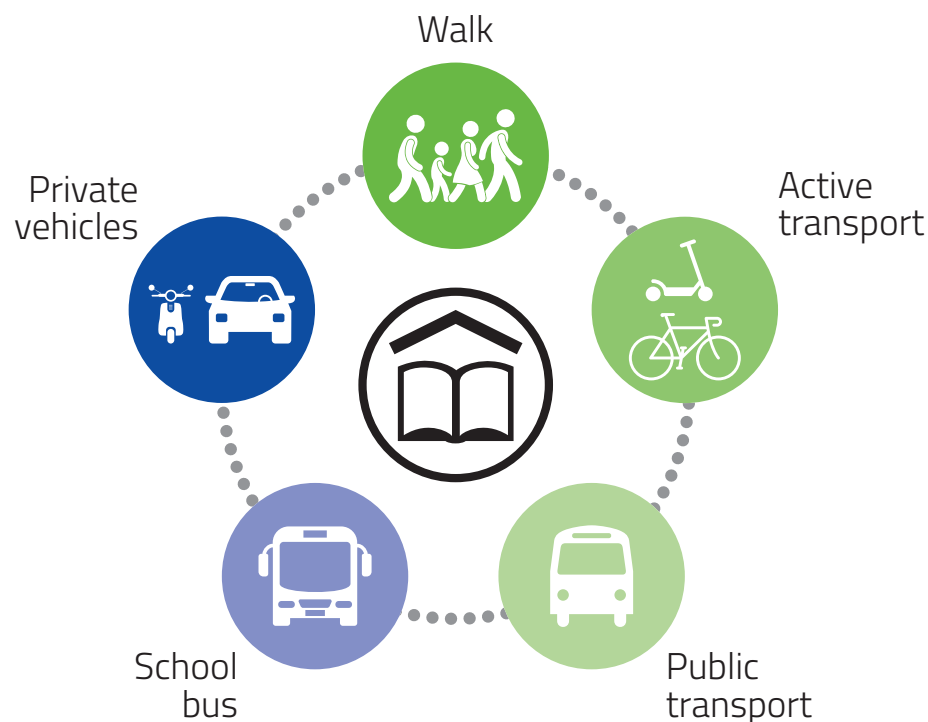
# What is sustainable mobility?

**Sustainable mobility means that we move in ways that are environmentally–friendly because they are healthier and less polluting.**
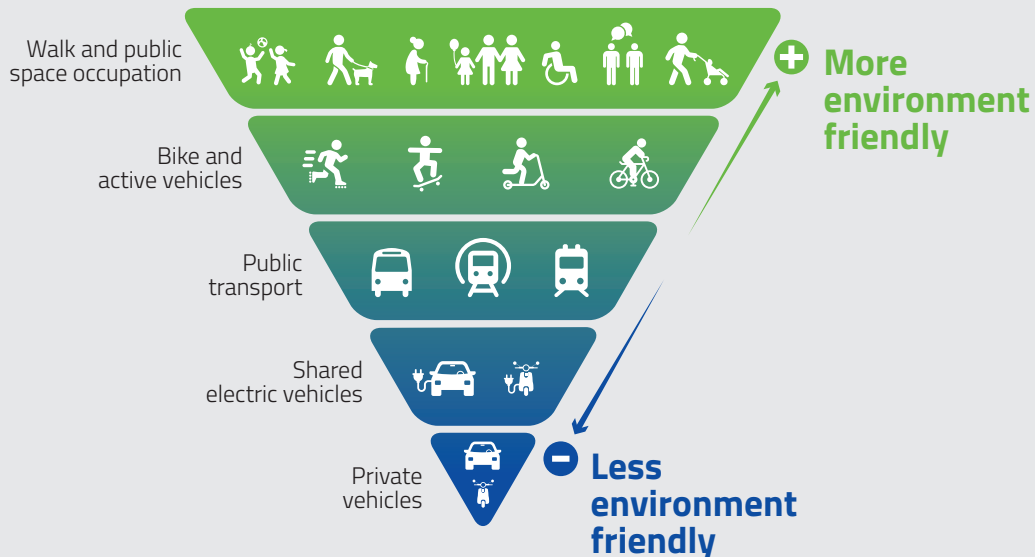
Therefore, we need to organize the mobility of our cities and towns to consider all the different ways we move, while priorizing the ones that are environmentally–friendly.

| Sustainable mobility | ▶ **Watch** |

The **Pyramid of sustainable mobility** teaches us that the preference in public spaces and roads will be higher for the more environmentally friendly transport modes, while the most polluting forms will be a lower priority.

Walk and public space occupation

Bike and active vehicles

Public transport

Shared electric vehicles

Private vehicles

➕ **More environment friendly**

➖ **Less environment friendly**

## Which scenes do you think are more sustainable?
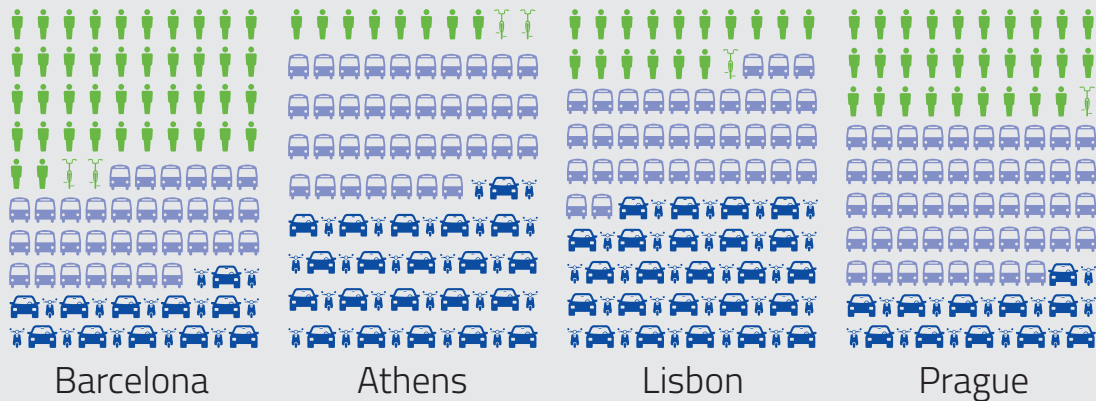
☐ A

☐ B

☐ C

☐ D

☐ E

☐ F

☐ G

☐ H

Correct answers: B – D – E – G

# This is how cities move

**The modal split shows the amount of people moving in a specific way through the city.**



Barcelona     Athens     Lisbon     Prague

**How does your class get to school?**

Record in a table how each pupil came to school today and draw the modal split



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# What is a sustainable mobility plan?

**A Mobility plan brings together all the actions we plan today that aim at achieving a more sustainable mobility in the future.**

For that we must look carefully at the way we currently move, and from there draw a vision of the desired future for the city and its mobility system, considering the needs of everyone involved: people and businesses, cities and environment.

A mobility plan allows your city to have:

→ More pedestrian areas and bike lanes.
→ More buses, and better and closer metro and train stations.
→ Less congested and contaminated streets and more green areas to move around.
→ Citizen participation in the planning of the city.
→ A more sustainable city.

# Planning together

**An appropriate way to gather and understand our community's mobility needs is through participation. This type of involvement is important because it allows for people's engagement and empowerment in the planning of the cities.**

Community involvement in city planning has also a positive impact because citizens will feel responsible and will develop a higher civic consciousness through the development and maintenance of the infrastructure.

Mobility Plans feed on citizen participation processes to satisfy the mobility needs of citizens. The same can be achieved at your school!

**Do you think your school could have a mobility plan?**

**Travel green to school**

Think of two ways to make your trip to school more sustainable.

What would you change in the way you currently get to school?

**Share**

# The four pillars of sustainable mobility

**Sustainable mobility is based on four pillars that cover the main features of modern urban mobility. The four pillars consider the whole mobility ecosystem, having an impact on the people, the environment, the infrastructure and the technology.**
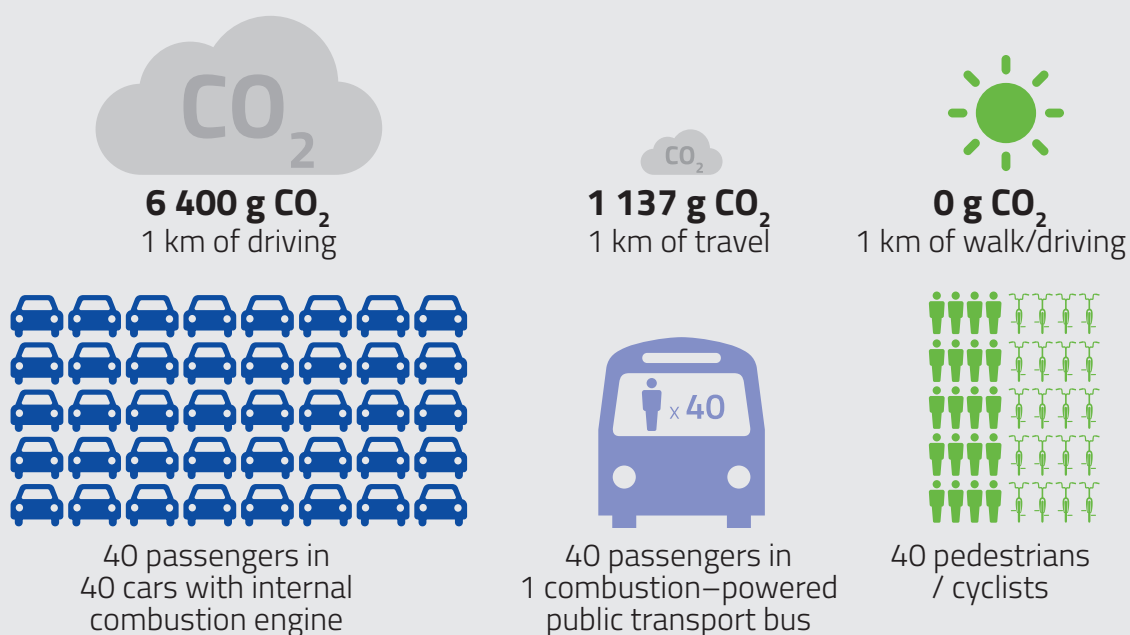
Clean mobility

Connected mobility

Sustainable mobility

Safe mobility

Accessible mobility
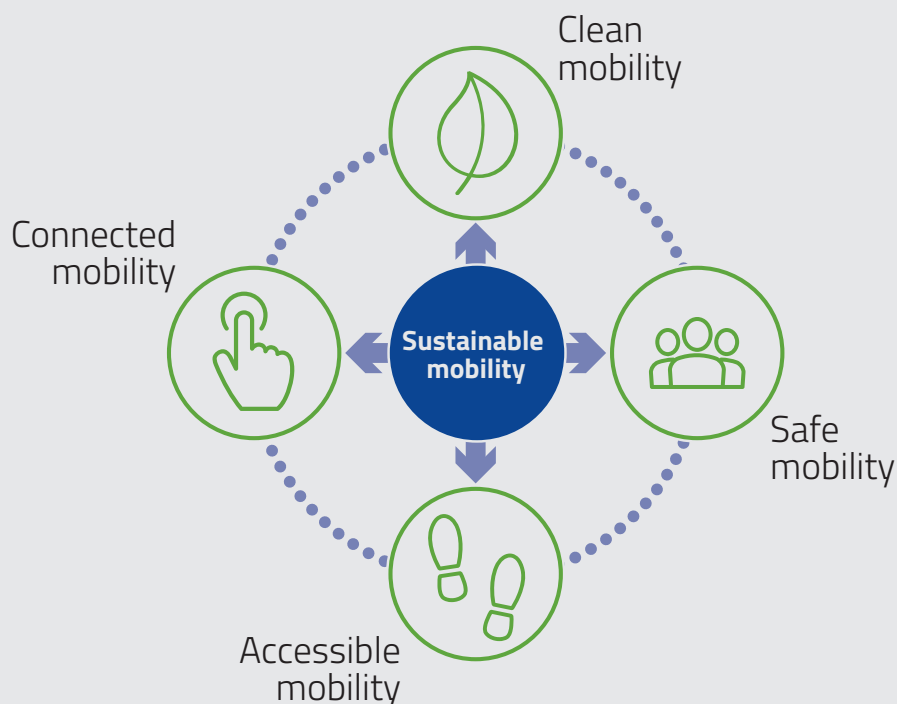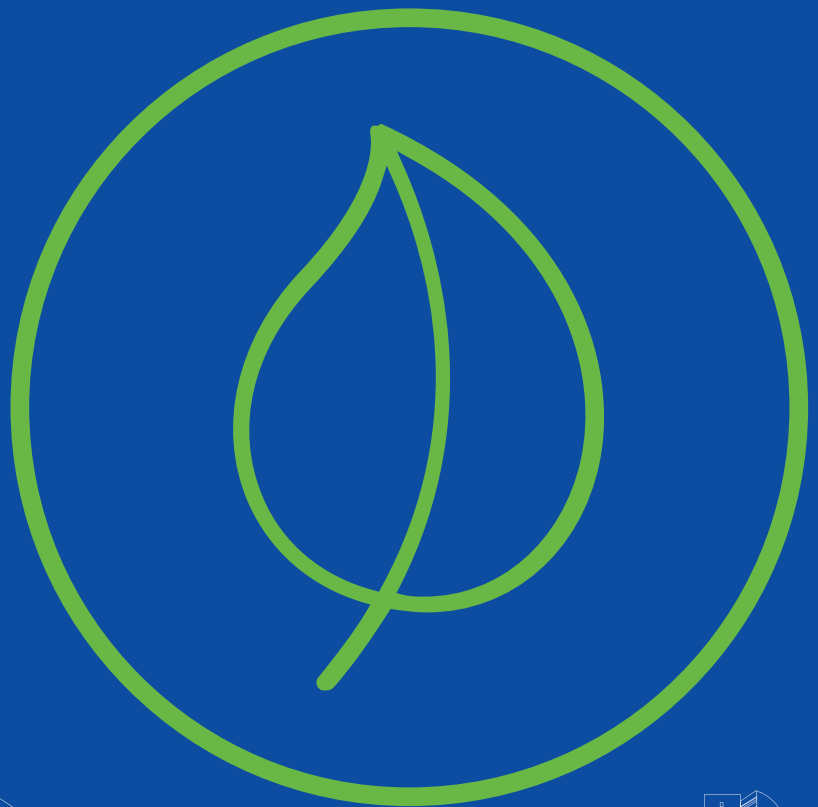
# Clean
# Mobility

# Clean mobility

**With clean and sustainable mobility, we want to reduce dependence on polluting and energy–intensive means of transport.**

➜ Transport is responsible for more than 1/4 of Europe's total greenhouse gas (GHG) emissions and is a major contributor to climate change.
➜ Road transport (cars, vans, trucks and buses) is responsible for over 70% of all transport emissions.

## Comparison of the generated emissions

$CO_2$

**6 400 g $CO_2$**
1 km of driving

$CO_2$

**1 137 g $CO_2$**
1 km of travel

**0 g $CO_2$**
1 km of walk/driving

40 passengers in
40 cars with internal
combustion engine

x 40

40 passengers in
1 combustion–powered
public transport bus

40 pedestrians
/ cyclists

Mobility using conventional and polluting means of transport also has other negative effects:

➜ Higher noise levels in cities.
➜ Encroachment on public spaces.
➜ High energy requirements for operation.
➜ Increased time spent in cars with traffic congestion.
➜ Health impacts: exposure to air pollution can lead to a wide range of disease.

We need to change to less poluting means of transport.

**Causes and consequences of climate change**    **Watch**

**Be a climate change hero!**    **Go to**

# Towards clean mobility

**We need to reduce emissions and improve air quality. The European Union has committed to reducing GHG emissions in transport by 90% by 2050.**

## How best to achieve this? Use some form of clean mobility

Clean mobility is of two kinds—active mobility (walking, cycling) and clean mobility using various kinds of alternative energy.

**1. Active Mobility:** Zero Emissions!!

Active mobility is the simplest form of human transport and, given the right conditions in cities, it is also safe and low maintenance.

**Walking**

**Cycling**

## 2. Using electricity or alternative energy sources

Various alternative drives are being promoted as clean mobility. Electricity or other alternative energy are allowing more and more forms of transport.

The following forms of clean energy are most popular in everyday urban traffic:

**Classic public transport (tram, metro, bus, train) has the effect of reducing cars as they can transport more people at once. Combined with the use of clean fuel, the effect of emissions–free transportation is improved.**

**Alternatively powered vehicles (natural gas, electric and others) brings emission reductions.**

**Local investigation of class**

Keep track of who used what type of transport during the week and how many of the vehicles used that were zero emissions. Record them on a table and compare it between classmates.

# Clean transport cities

**Transport emissions are the main cause of air pollution in cities. Clean mobility is not just about the vehicles, but also about how the city is managed.**

Indeed, cities can contribute with actions such as:

➜ Promote walking and cycling by creating and improving infrastructure (increased pedestrian space, bike lanes, charging stations, parking racks) or services for cyclists (e.g. secure bicycle storage).
➜ Actively direct traffic away from centres.
➜ Promote public transport.

Clean mobility can be an effective tool for creating environmentally–friendly cities with fast, safe transport and increasing space for citizen use.

**Towards clean and sustainable mobility**          **Watch**

# Safe
# Mobility

# Safe Mobility

**Everyone has the right to move around the city, and to do so as safely as possible. Mobility options must ensure safety and comfort in public spaces, so that no one stops using a certain mode of transport because they feel unsafe.**

## Which scenes do you think represent a safer mobility?

☐ A
☐ B
☐ C
☐ D

☐ E
☐ F
☐ G
☐ H

Correct answers: B – C – E – G – H

Everyone must feel safe and comfortable when moving around, especially those most vulnerable. Vulnerability in mobility means that there are ways of moving that have greater risk of causing injuries in case of traffic accidents.

Safe mobility means being able to travel to school without risk of accidents.

**Achieving safer mobility on our way to school**

Pick a street you use to arrive to school and draw three unsafe situations.

# Friendlier and safer cities to move around

**Most accidents occur on our urban roads and streets. We can make our streets safer through a more sustainable mobility. For that, we need more people using active and healthy modes, such as walking, bicycling and skating, and using public transport, such as buses, instead of using private cars.**

Moreover, cities must also take care of the quality and comfort of urban public spaces by creating more and better spaces for walking, bicycling and skating, while reducing the maximum speed for cars

## Which is most vulnerable mode on the street?

Speed is the single most important factor in the safety of a street, and it is directly proportional to the risk of pedestrian fatality in cases of accidents.

But remember that you can also contribute to safer mobility, by being attentive to your surroundings and by taking into account the other people who use the public space.

You can also help achieve safer mobility by becoming involved in citizen participation processes and effectively create changes in your neighbourhood.

**It´s a drag! vehicle stopping distances.**    ▷ **Play**

# Road safety

**Road safety covers all the actions that guarantee the adequate circulation of traffic and people within our cities' roads and streets, through the knowledge of the rules and regulations and the way we behave while moving through the city, in order to prevent traffic accidents.**

We are all pedestrians at some point or another. Therefore, it is very important to know what our rights and obligations are when walking through the city, in order to guarantee our safety.

**How to cross the street**     ▶ **Watch**

Road safety also has at its core the principle of active and passive safety, which are essentially the actions you can take before and after an accident has occurred in order to minimize its impact.

**Use the rules we learned on how to cross safely**

**Know the different traffic and road signs**

**Wear protection when we bike, skate (helmet, gloves, etc.).**

**Wear seatbelts while in cars.**

**Road safety lessons: Bike safety**     ▶ **Watch**

# Accessible Mobility

# Accessible mobility

**Accessible mobility means equal opportunities to move and travel for all people. These can be, for example elderly people, kids and people with disabilities.**

**The inclusion project**

How to make mobility more inclusive and accessible for all

▶ **Watch**

# Design for all
# (universal accessibility)

**"Design for all" or "Universal Design" is based on the principle that the mobility services should be designed to be easily used by all people without the need for adaptation or specialized features for specific user groups.**

This doesn't mean the exclusion of assistive devices for particular groups of persons such as persons with disabilities (e.g. wheelchair users) where and if this is needed.

Universal Design means that city infrastructure (streets, roads, lights, etc.) and transport systems (bus stops, buses, trains, trains stations, etc.), including technology (websites of public transport services, booking apps, etc.), are usable for all. For example, the online content that informs people for the mobility services (e.g. websites of public transport services) as well as the applications (e.g. booking apps) must be accessible, including for people with disabilities, hearing impairments, visual impairments, physical impairments or other disabilities.

### The blindfold game

*Rearrange the furniture in the classroom and put a blindfold on the students. Make them go from point A to point B and describe the challenges they find along the way.*

# The role of public space in an accessible city

**Public space is a powerful instrument of social inclusion promoting democratic values.**

In the case of children, it is important that you can move around safely. Therefore, the city needs child-friendly and safer streets that will enable you to travel around on your own and offer more possibilities to interact and benefit from your environment.

To understand the diverse needs of transportation users including kids, urban transportation planners should engage you throughout all phases of the process, from planning to transform the streets. Your participation is important!

**City streets and mobility through the eyes of children**    **Watch**

# Connected
# Mobility

# Connected mobility

**Connected Mobility means that mobility services, such as public transport (bus, metro, train, etc.), individual mobility (bike, walk, motorcycle, scooter), and others, are reachable to all citizens, according to the necessities of each user.**

To meet this main objective, several tools such as technological tools, information, new technologies and innovation in mobility, support connected mobility.

Technological innovations are at the service of cities' inhabitants since they can bring benefits, such as a cleaner, safer, and more accessible way of moving for everyone.

Technologies have been revolutionizing the human experience by often replacing many of the tasks once handled by humans. For example, automated vehicles (AVs) and electric vehicles, along with other innovative vehicle technologies.

AVs are self-driving vehicles. They also can be used as shared vehicles to transport people. They operate based on electric cars and currently still have a driver (which is a safeguard for some potential collision situation), but in the future will be fully automated.

# Digital gap

**It refers to a new form of social inequality derived from dissimilar access to new information and communications technologies.**

**Design for All** is needed. Some examples:

➜ For the elderly, mobility services should still have the option of being requested by traditional phone, since in most cases, they do not have smartphones.

➜ For users from different regions, mobility services must be offered in different languages and not be limited to the local ones.

➜ For people with disabilities, hearing impairments, visual impairments, physical impairments or other disabilities, the information and communication should be adapted so mobility services are universally accessible no matter the different physical conditions.

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**Using public transport**

Imagine you want to take a bus or train from your school's closest station to the centre of another city nearby.

Take a look at the following bus or train timetables and try to answer:

➜ which is the first bus or train on Mondays?
➜ and the last?
➜ during the weekends, is there the same schedule?
➜ if not, do you know why?
➜ do you think these timetables are user friendly and easy to understand?

# Technological tools

**Advances in technological development in mobility contribute to improving the way we move since they help us accurately identify problem routes or they suggest the best options to make a journey, among others.**

Sharing cars, bicycles or electric motorbikes also helps achieve sustainable mobility. This is possible through the use of technological tools.
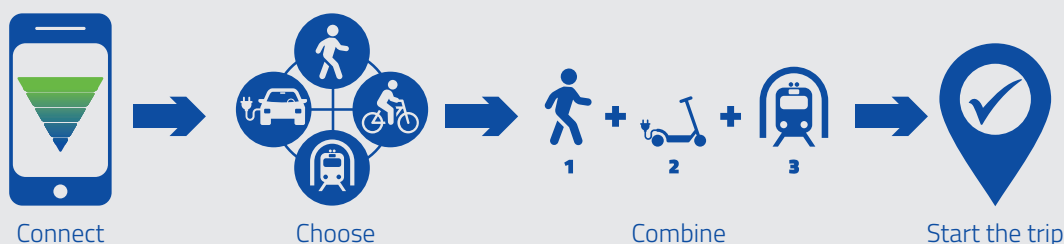
Connect → Choose → Combine → Start the trip

Urban Mobility

Co-funded by the
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**CES4Kids**

- ➔ Centre for Research & Technology Hellas (CERTH)
- ➔ European Passengers' Federation (EPF)
- ➔ Institute for Advanced Studies and Awareness (IASA)
- ➔ Major Development Agency Thessaloniki (MDAT)
- ➔ Municipality of Cascais
- ➔ Municipality of Fundão
- ➔ PowerHUB

- ➔ Instituto Superior Técnico (IST)
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- ➔ Edenway
- ➔ Barcelona City Council
- ➔ Barcelona Regional