Let's move Europe:

School-based promotion of healthy lifestyles to prevent obesity

Active School Transport Toolkit

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INTRODUCTION

What is Active Commuting?

Active commuting refers to the use of physically active means during trips as opposed to the use of motorized transportation such as cars. The most common active commuting means are walking and cycling but it could also include skating or skateboarding or any other involving physical activity. The use of public transport is also considered active commuting as at least one part of the trip is made actively. In fact, walking and cycling are simple, accessible, and cost-effective ways of being active and are among the most efficient and sustainable means of transportation [1].

Research shows that active commuting may be an important source of physical activity [2] with potential to improve health.

Active commuting to school (ACS) is associated with lower obesity levels [3] improved cardiorespiratory fitness [4], metabolic health [5], academic performance [6, 7] increased mental well-being [8] and promote independent mobility [9].

Besides health, active commuting also has the potential to have important impact in the communities given its economic, social and environmental benefits [1] such as a decline in carbon emissions, less traffic noise, greater social interaction [10], and a reduction in injury rates [11].

Despite these well recognized benefits active commuting rates are low and declining in many countries [1].

Several factors can contribute to ACS [12], according to ecological models' multilevel interventions to increase behaviours are most effective when operated at different levels [13], targeting individuals, social environments, physical environments, and policies .

Indeed, ACS may be an important public health strategy due to its regularity and the broad target as it may impact on many children from all backgrounds.

Moreover, health behaviours formed during young years may impact health trajectories for life [14] and school interventions that actively promote the participation of families and communities like walking school buses and educational strategies are most effective for increasing active travel [15].

Therefore, implementing national and community-based campaigns to enhance awareness and understanding of walking, cycling can make a significant contribution to individual and community health and thereby to the development of sustainable mobility to achieve the 2030 Sustainable Development Goals (SDGs) [16].

This can directly contribute to achieving SDG3 (good health and well-being) as well as SDG4 (quality education); SDG5 (gender equality); SDG9 (industry, innovation, and infrastructure); SDG10 (reduced inequalities); SDG11 (sustainable cities and communities) and SDG13 (climate action).

2

TIPS Active Commuting to school

2.1 TIPS Active Commuting for SCHOOL

WHAT the SCHOOL can do

1. To integrate bike school parking facilities (safety).
2. To integrate bike ride in the school curriculum.
3. To organize training courses for teachers and parents about active commuting.
4. To organize walking interventions such as walking school bus.
5. To elaborate educational programs for children and parents on the benefits of active commuting and safety tips.
6. To support awareness active commuting campaigns.

2.1 TIPS Active Commuting for SCHOOL

HOW the SCHOOL can do

1. To cooperate with local authorities to promote safe bike routes.
2. To cooperate with teachers to promote active commuting to school and integrate bike contents in their didactic programs.
3. To provide active commuting to school tolls to teachers such as i) school active commuting activities (i.e., bikebus, etc.); ii) interdisciplinary strategies between subjects related with bike ride or school, etc.

4. To cooperate with parents to organize walk or bike activities.
5. Organize competitions of miles, walked or cycled, with other schools or within schools between different school grades.
6. To elaborate materials for dissemination of campaigns for active commuting.
7. Promote a monthly/ weekly wheel day (children can take their bikes/ scooters, skates to use inside school).

2.2
TIPS Active Commuting for TEACHERS

WHAT the TEACHERS can do

1. To teach about bike riding and walkability.
2. To teach about bike components and repair.
3. To design safe bike/ walking circuits.
4. To promote interdisciplinary bike/walk activities with other subjects.

2.2 TIPS Active Commuting for TEACHERS

HOW the TEACHERS can do

1. To provide choice and a variety of suitable bikes resources (i.e., Bike library, videos, etc.).
2. To design bike didactics units about i) bike safety (teaching students about cycling and road safety; i) bike components (teaching students to fix their bicycles; iii) Bike closed circuit (design and practice ride a bike in a close circuit in the school); iv) Bike path design (designing together other subjects bike paths around the school; iv) Bike event (To plan outings, excursion and cycling activities).
3. Walking didactics unit: road safety with road signs; identify safest places to cross; create a walking bus map with drop on/off places; design different routes; identify environmental barriers for walking around school.
4. Create materials for active commuting campaigns.
5. Design walking trails with fitness stations.

2.3 TIPS Active Commuting for PARENTS

WHAT PARENTS can do

1. To cooperate with the school and teachers. Parents should make sure the child is learning.
2. To support cycle teaching out of school. Parents are important role models for a healthy lifestyle.
3. To support active commuting to school.

2.3 TIPS Active Commuting for PARENTS

HOW PARENTS can do

1. To organize active commuting activities together with the teachers.
2. To plan family excursions and cycling activities.
3. To support school active commuting strategies.
4. Assure all legal requirements for a good use of the bicycle (insurance, helmets…).
5. Volunteer as a walking-cycle school bus “driver”.
6. To walk with children identifying where to cross and recognizing traffic signs.

2.4 TIPS Active Commuting for AUTHORITIES

WHAT LOCAL AUTHORITIES can do

1. To ensure good walking and cycling infrastructure, reduce speed limits, preserve school zones (i.e., no stopping in cycle lines), etc. Authorities must ensure that all children can safely and securely walk or cycle to school.

2. To make a municipal cycling policy plan and to promote a good dissemination of it.

3. Identify changes in order to improve walking and cycling conditions.

4. To cooperate with the school administration and environmental department.

5. To ease rental bikes for school active commuting use.

6. Facilitate activities in the neighborhoods to improve children's autonomy.

2.4 TIPS Active Commuting for AUTHORITIES

HOW LOCAL AUTHORITIES can do

1. To create a no car area around schools, closing streets among rush hours.
2. To design/paint/sign posting of a drop on/off stop for school walking or cycling buses.
3. To design cycle or walking paths.
4. To create speed humps or lower speed limits around schools.
5. Beat boxes for children to stop by.
6. To promote and collaborate with Educational Institutions such as University level or primary and/or secondary school in order to find good practices.

3

STEPS

Active Commuting to School (ACS)

demands safe routes programs to improve safety conditions and increase the number of students walking to and from school. An ACS program can help to reduce air pollution, increase the number of students walking and cycling, and give children and adults an opportunity to get some exercise and socialize, all while getting to school on time.

Based on key documents from successful implemented ACS programs in different countries as United Kingdom (UK) (https://www.sustrans.org.uk/media/4687/4687.pdf), United States of America (USA) https:// www.saferoutespartnership.org/sites/default/files/resource_files/step-by-step-walking-school-bus.pdf), Scotland (https://www.cycling.scot/mediaLibrary/other/english/5539.pdf) and health authorities like World Health Organization (WHO) (https://apps.who.int/iris/bitstream/ handle/10665/350836/9789240035928-eng.pdf? sequence=1&isAllowed=y), we have compiled the main steps to take when implementing ACS programs.

1) Getting Started

- Discussing the idea with your head teacher and/or other key personnel.
- Identify your partners, and work with your team to answer some key questions. Principals can help to communicate with students and parents, and as a school leader, can gain their support.

  Your team should have:
  (1) school staff representation,
  (2) a parent/teacher association representation,
  (3) a student representation and
  (4) other…additional people who can help with specific parts of the program.
- Appointing someone to coordinate the programme.

2) Planning Your Route

A. Where do students live? You may need to make a proximity map: a visual representation of where students live in relation to the school.

B. Conduct a walkability assessment of your potential routes (resource: e.g. https://www.saferoutesinfo.org/).

C. Identify “stops” if you will have them.

D. Time your route so you know you’re walking/cycling will make it to school in areasonable amount of time.

E. **Create a map** that shows the route, the stop locations, and the pick-up/drop-off times for each stop. This map can also include contact information, and a brief description of your program for promotional and informational purposes. **Post the map on the school website and distribute a copy to each participating student and adult leader.** Get hold of some copies of a local map and make them available to pupils, staff, and parents – people may be unaware of their route options in the locality.

How to decide on the route?

You should map out the different routes to school and identify the safest option. If your school has a School Travel Plan, your bike bus route can be informed by this. If you don’t, tools such as **mapometer** or Cycle Streets can help you plan. You may also want to speak to the school travel professional in your local authority to help with route planning and starting a travel plan.

The next stage is to **decide on points along the route for children and families to join the moving bike bus**, ensuring as many children as possible can access it within the school catchment area. It’s important to identify a safe route to enter the school grounds. **Once at school, consider where bikes can be parked.** You may need to investigate if the school can identify additional space for bikes.

3) Recruiting Students and Leaders

Start with student recruitment since a strong student turnout can help recruit adult leaders, particularly parents and other family members, and elevate the perceived need for the program. But it is also fine to start with leader recruitment and base the number of routes you offer on the number of adults available, limiting student numbers accordingly.

- Make sure the Head Teacher is involved early in the planning process. Having their blessing will help ensure the whole school is onboard and make delivery much easier.
- Decide who you're communicating with, how and what the message is.
- Communication with parents – having their support will be crucial to the success of the programme. You could use letters, texts, your website, or social media.
- Cross-promote student and adult recruitment using the registration/interest forms to create awareness of the opportunities and to make it easier to sign up both.
- If you have a proximity map (described earlier), start here to find students who live near or feed into the designated route. Also, work with your principal or counsellors to discuss how the program can support students who may have attendance or tardiness problems.
- How to reach students: school communications, flyers to families, emails, calls from principals, and in-class presentations can reach students and their families. Consider using social media channels as well.

4) Starting and Running Your Program

- Identify a sufficient number of adults to supervise walkers or cyclists (one adult for children ages 4 to 6, and one adult for six children ages 7 to 9);
- Identify how many bikes are being stored at school.
- Provide cycle and walking training that is appropriate to the needs of your pupils. There will probably be quite a diversity of existing skills depending on age, development, and experience.
- Finalize logistical details including setting a time schedule.
- Confirm routes with students by distributing a packet to students' families that registered. Include the final route map, Code of Conduct, and Confirmation Letter.

Be inclusive: Consider the needs of students with physical, developmental, and mental health disabilities and how best they can be accommodated in your program.

- Take pictures and use them to promote the program throughout the year. Make sure all students have photo release forms on file at the school orvinclude the photo release statement on your Student Registration Form and Adult Leader Interest Form.
- A whole-school or year-group assembly is a perfect time to get everyone excited about your programme.
- Send press releases or articles to the local paper and school paper. Promote the event/programme on social media.
- Attract and retain students through fun and safe activities along the route. Provide small giveaways or prizes for students who participate regularly, such as recognition from the school or principal in announcements.
- Keep in touch with adult leaders through regular meetings, emails, texts, newsletters, or phone calls. Figure out what works for staying in touch. Keep adults engaged -- ask for their advice, if they know of others that can help, and examples of good things that have happened on their experience.
- Track participation.
  Keep communication open with your students, families, administration, and leaders.
- Remind leaders and students they are doing a good job and thank everyone for their participation.
- Continue recruiting students, leaders, and team members in case individuals move or cannot meet their responsibilities.

Considerations: requires parents to walk with children or use waivers to address liability concerns; bicycle train participants need to wear helmets.

5) Evaluating and Adjusting Your ACS Program

How well is your program working? What can be adjusted to make it more accessible, safe, and fun? Evaluating your program periodically is key to keeping it fresh, focused, and safe. It is important to evaluate a new program at a mid-point during the first year of operations, as well as at the end of each year to adjust for the following year.

- Review the comment regularly, these can identify issues that need to be addressed.
- Survey students on their experiences with the program and ask them what can make it safer, fun, and more accessible. If you have a student representative on your team, ask their advice on how to reach more students.
- Survey families on their experience with the program and ask them what can make it safer, fun, and more accessible.
- Adjust your program as needed to make it safer, accessible, and fun.
- Make changes to the activities as needed.

6) Moving forward

- Celebrate your achievements and tell everyone what happens next.
- Strengthening your relationships with your public health department, public works department, or transportation department may benefit students at your school, especially if these departments have an existing active transportation.
- Identify areas of the curriculum where active travel can be discussed, investigated, and encouraged. Embedding cycling, walking, and scooting into the school culture is crucial and using the curriculum is an ideal way to facilitate this.

References:

https://www.saferoutespartnership.org/sites/default/files/resource_files/stepby-step-walking-school-bus.pdf
https://www.cycling.scot/mediaLibrary/other/english/5539.pdf
https://www.sustrans.org.uk/media/4687/4687.pdf
https://apps.who.int/iris/bitstream/handle/10665/350836/9789240035928-eng.pdf?sequence=1&isAllowed=y

4

LEARNING UNITS

In order to encourage teachers to promote Active Commuting to School (ACS) in their Primary or Secondary Schools, one of the useful tools to be considered are Learning Units (LU). In this statement, some examples regarding to walking and/or cycling to School LU can be followed.

4.1 Walking Learning Unit (Primary School)

4.2 Walking Learning Unit (Secondary School)

4.3 Cycling Learning Unit

4.1 Walking Learning Unit (Primary School)

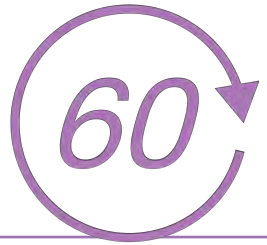
Specific Objectives:

a) To know the use of Active Commuting, around the city, as a healthy lifestyle (Walking, Running, Cycling).

b) To commute on foot (walking and running) with different intensity and in safety condition (walkway lane, respect of traffic rules).

c) To commute by bike in safety condition (wearing a helmet, on bike lane, respect of traffic rules).

Key message:
Active Commuting is easy and sustainable, being one of the best strategies to achieve WHO PA recommendations for children and adolescents to perform at least 60 minutes of Moderate to Vigorous PA or 7000 to 10000 daily steps.



Material: Happy feet log, Borg Scale	Methods: Participatory lectures on the topic of Active Commuting; applied lessons in the gym; recording of personal data in the diary.	Frequency: two lessons	Timing: 60 minutes	Potential Curricular links: Science: Cardiovascular system; Physical Education: walking/running/cycling, correct posture, different applications and intensity; Geography: study of city maps.

LET'S START PLAYING FOR HEALTH

Initial Discussion about Active Commuting as Physical activity

Discussion about active commuting at various intensities and its contribution to cardiovascular health. Reflection on the sustainability of walking/running/cycling in all environments, spaces, time and conditions.

Learning points

What is the meaning of Active Commuting?
- Teacher starts to explain why to be active is important for children

- How many steps children have to carry out in a day if they walking or running?

- How many kilometers to do in a day with the bike

Classroom activities

- Walking/running/cycling at different speeds in playful activities (paths, transporting objects, games in pairs with a partner with eyes closed) - measurement of heart rate after a walking/running/cycling at low, medium and high intensity - application of Borg Scale.

- Study of road maps and distance calculations on a small scale - search for one's home and positioning on the map - hypothesis of some routes from home to.... and back

Healthy homework + Challenges

- During the week or on the weekend, calculate with dad and mom three routes on the city map. Realize the three routes by walking or running or cycling: 1) route taken at a leisurely pace (e.g. go to the supermarket), 2) route taken at a medium-high speed (e.g. go to the parish or the nearest park), 3) route taken at a high speed (walking/ running/cycling with parents).

- Write down in the personal diary: a) the three paths made indicating the routes, outward and return, to and from home; b) note the heart rate at the start, at the end of the outward journey, at the end of the return; c) note the self-evaluation with the Borg scale; d) note the feelings experienced in the three paths

Final Discussion after homework and challenges

Circle time about the home challenges, is it feasible? Do you enjoy homework?

I was able to increase the number of steps in a day? If no, why not?

Attachments
Example of a diary page

Name Surname	Female Male	Age	Class

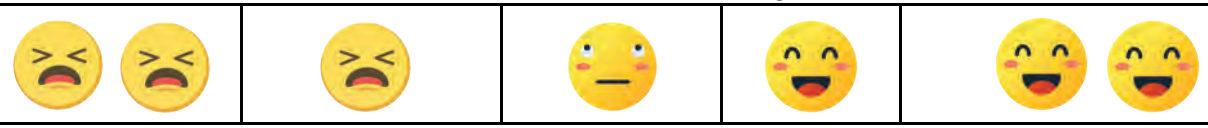
QUESTIONS BEFORE THE ACTIVITIES										
Are you aware of how important is the active commuting?	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Can you control walking/running/cycling better or worse than other skills?	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Can walking/running/cycling affect your heart?	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

ACTIVITIES				
Day and place	1 low intensity	2 Medium intensity	3 high intensity	Borg Correspondence
	1 route	2 route	2 route	Borg correspondence
	BPM at start	BPM at start	BPM at start	1: ; 2: ; 3:
	BPM going	BPM going	BPM going	1: ; 2: ; 3:
	BPM return	BPM return	BPM return	1: ; 2: ; 3:
	Velocity	Velocity	Velocity	
With parent	Vel.1	Vel.1	Vel.1	Borg average
With parent	Average bpm	Average bpm	Average bpm	1: ; 2: ; 3:

QUESTIONS AFTER THE ACTIVITIES (1=low, 10=high)										
Do you understand the importance of active commuting?	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Do you feel more in control on walking/running/cycling?	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
At what maximum speed can you walk/run and with how many heartbeats per minute?	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

	Impressions and personal sensations on the three routes
With the parent	Description:

HOW DO YOU FEEL, COMPARED TO Active commuting AFTER THIS EXPERIENCE?



References

https://www.who.int/publications/i/item/9789240015128

https://www.acsm.org/blog-detail/acsm-certified-blog/2019/06/14/walking-10000-steps-a-day-physical-activity-guidelines

4.2 Walking Learning Unit (Secondary School)

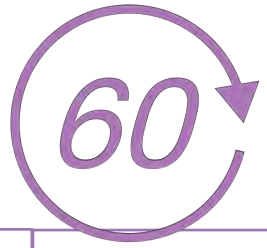
Goals:

a) To know the use of Active Commuting, around the city, as a healthy lifestyle (Walking, Running, Cycling).

b) To commute on foot (walking and running) with different intensity and in safety condition (walkway lane, respect of traffic rules).

c) To commute by bike in safety condition (wearing a helmet, on bike lane, respect of traffic rules).

Key message:
Active Commuting is easy and sustainable, one of the ways to achieve WHO recommends for children and adolescents to perform at least 60 minutes of Moderate to Vigorous PA or 7000 to 10000 daily steps.



Material: Happy feet log, Borg Scale	Methods: Group work on the topic of Active Commuting; applied group work in the gym; group work in the home challenges, recording of personal data in the diary.	NB. Group work assumes that groups are formed in relation to the fact that the student) can also work together extracurricularly on home challenge tasks.	Frequency: two lessons Timing: 60 minutes	Science: Cardiovascular system; Physical Education: walking/running/cycling - correct walking posture - different applications and intensity; Mats: space-time-velocity; Geography: study of city maps.

LET'S START PLAYING FOR HEALTH

Initial Discussion about Active Commuting as Physical activity
Discussion about walking/running/cycling at various intensities and its contribution to cardiovascular health. Reflection on the sustainability of walking/running/Cycling in all environments, spaces, time and conditions.

Learning points in classroom activities

What is the meaning of Active commuting
• Teacher starts to explain what Active Commuting is, why it is important for children

• How many steps children should carry out in a day (running/walking)?

• How many kilometers children should cycle in a day (cycling)?

Classroom activities

• Group work on the functions and modifications of the cardio-circulatory and respiratory system in function of different intensities of physical-motor engagement. Production of a short manual, deduced from all the group work, to be delivered to each student/vault

• Group work: organizing active commuting activities at different speeds (recreational activities, games, other). Each group presents and has everyone try their work (including measuring heart rates and applying the fatigue self-perception tool.

• Group work: calculating the different speeds of movement of different athletics disciplines (running, walking, cycling) and comparing them with each other (based on national or Olympic records).

• Group work: research of tools for self-assessment of fatigue. At the end of the group work, the tool considered easiest and most usable for the self-evaluation of fatigue is chosen. Creation of the personal diary (what data to introduce, what kind of recording).

• Group work: studying street maps or city parks and calculating routes of equal or variable distance from home.

Healthy homework + Challenges

• During the week and on the weekend, together with the companions of the group working in class, calculate and realize together, giving appointment in an appropriate place, at least three paths: Groups A: three routes of equal distance, on the city map or on the map of a public park, to be carried out at low-medium-high intensity. Pulse calculation, individual speed calculation, differences, self-evaluation of fatigue perception with the chosen instrument. Group B: three routes of different lengths, on the city map or on the map of a public park, to be carried out at the highest possible speed. Pulse calculation, individual speed calculation, differences, self-evaluation of fatigue perception with the chosen instrument. Realize with the partners of the group the situations a) and b), in three different days of two different weeks.

• Record in the personal diary, chosen by the class through group work the elements chosen as data to be recorded.

Final Discussion after homework and challenges

Circle time about the home challenges, is it feasible? Are you enjoying the homework?

Where you able to increase the number of steps in a day? If no, why not?

Attachments
Example of a diary page

Name Surname	Female Male	Age	Class

QUESTIONS BEFORE THE ACTIVITIES

Are you aware of how important active commuting is?	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Can you control walking/running/cycling better or worse than other skills?	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Can walking/running/cycling affect your heart?	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

ACTIVITIES

Day and place	1 Gentle run	2 Medium run	3 Intense run	Borg Correspondence
	1 route	2 route	2 route	Borg correspondence
	BPM at start	BPM at start	BPM at start	1: ; 2: ; 3:
	BPM going	BPM going	BPM going	1: ; 2: ; 3:
	BPM return	BPM return	BPM return	1: ; 2: ; 3:
	Velocity	Velocity	Velocity	
With parent	Vel.1	Vel.1	Vel.1	Borg average
With parent	Average bpm	Average bpm	Average bpm	1: ; 2: ; 3:

QUESTIONS AFTER THE ACTIVITIES (1=low, 10=high)

Do you understand the importance of active commuting ?	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Do you feel more in control of walking/running/cycling?	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
At what maximum speed can you walk/run/ride bike and with how many heartbeats per minute?	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

	Impressions and personal sensations on the three routes
With the group partners	Description:

HOW DO YOU FEEL, COMPARED TO WALKING, AFTER THIS EXPERIENCE?

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

References

https://www.who.int/publications/i/item/9789240015128

https://www.acsm.org/blog-detail/acsm-certified-blog/2019/06/14/walking-10000-steps-a-day-physical-activity-guidelines

4.3 Cycling Learning Unit

Specific objectives:

a) To get started and practice basic technical aspects to ride a bicycle safely in the urban environment.
b) To know and practice basic rules of traffic and road signs.
c) To raise awareness about the importance of making use of protective clothing and accessories necessary to circulate safely.
d) To know and practice basic actions of adjustment and maintenance of the bicycle.
e) To develop critical attitudes about the benefits and the reasoning for using the bicycle.

Bikeability sessions:

o 1st session: Introduction and interactive theoretical training. Students will be made aware of the benefits of using the bicycle, traffic and safety regulations [traffic regulations and safety], basic concepts for its maintenance, as well as actions against unforeseen events so that students find applicability in their day to day when using the bicycle.

o 2nd session: Mini mechanics. It will be taught to regulate in a basic and autonomous way the parts of a bicycle. After this session, students could solve simple mechanical problems in their day to day in an independent way.

o 3rd session: "Bikeability" circuit. It will be taught the technical aspects and basic control of bike commuting, guaranteeing a basic mastery to circulate on the urban road safely.

o 4th session: Gymkhana Bikeability "Get your bike license to ride". There will be a gymkhana in groups of 5 stages, where they must overcome a challenge in each one by applying basic skills on the bicycle. After overcoming each stage, the “bike license” will be sealed. At the end of the session there will be an activity with the large group to consolidate every content learnt during the program.

1st	Bikeability program				
Location	Open-space	**Time**	55 min	**Nº Participants**	22
Objectives	• To strengthen knowledge about road safety education by bicycle. • To know the main bicycle mechanics parts. • To develop critical aspects about the benefits and reasons for using the bicycle as a mode of transport.				
Material	Printed and plasticized cards; 4-5 bicycles; 2 cones of different color; adhesive paper.				

Session development	
Activities	**Time**
Presentation. In a large circle with all students, we will introduce ourselves and make a small explanation of the program and our objectives. We will ask each student their names and if they like ride bike or not and the reason, giving the turn of speech with a miniature bicycle.	5 min
Battery of questions. Teams of 3-4 students: the following activities will be carried out: 1.! **Relate traffic signals with meaning:** Each group will be given a series of cards with the meaning of different signals. The students required to run 20 meters back and forth across marked track Al the end of the track will be situated the signals. Through a relay race, they must go and place the card on the corresponding signal. Variant: They will go on bicycle. 2.! **Relate circulation signals with their meaning**: The same dynamics of the previous activity will be performed, but changing the signals. Variant: "Simon says", a person will be in charge of indicating the directions orally and through the traffic signals. Students must move towards the direction indicated by the traffic signal without being confused with the oral indication. 3.! **Identify the name-part of the bicycle:** Each group will be granted a bicycle and a series of cards with the written name of the different parts of it. Each group must paste the cards on the part of the bicycle that they believe corresponds according to their name. 4.! **True/false:** Students will be organized into a large group. One of the teachers will announce an announcement and the students must position themselves in one cone or another according to whether they believe that the statementis true or false. Finally, once the activity has finished, the answers will be explained (The material used for these activities can be found in annex 1).	35 min
Rain of benefits. Groups will be asked to think about 4 benefits of cycling. Subsequently, each group will present their benefits thoughts and that will be discussed with teaching staff. Likewise, the bicycle will be compared with another mode of transport (active or passive mode of transport).	15 min

2nd Session	Bikeability program				
Location	Open-space	**Time**	55 min	**Nº Participants**	22
Objective	• To expand knowledge about the main parts of the bicycle. • To learn how to adjust the saddle and handlebars. • To learn how to place the chain easily.				
Material	1 bike per student, 30 cones, 3-4 Allen wrenches if needed to adjust the saddle				

Session development	
Activities	**Time**
Approach to the situation. Present a situation to the students through an interactive story (ex. welcome to the great academy of mechanics, in this class we will learn the basic mechanics of a fabulous vehicle, and I am nottalking about planes, boats or submarines, I mean bicycles ...). First, everymechanic must know the parts of the bike.	7 min
Review part of the bike. Teachers will point out different parts on a bicycleand students will have to name them aloud.	4 min
Mechanics vs. pull out the chain. First, it explains and demonstrates how to place the chain in the event that it deviates. Subsequently, the following recreational activities are developed to strengthen what it has been learned. The class will be organized in 3 teams. 1.! **Cyclists:** they must travel by bicycle through the space, without using thepedals, they will move the bicycle putting their feet on the ground. 2.! **Chain-puller**: Some student will be in charge of pull out the chain of the others classmates. They will call “The Chain-puller” and they will wear a reflective vest. They must stop the cyclists making a signal with their hands and then extract the chain to the bicycle. 3.! **Mechanics:** they will be located in their "workshops" (cones). When achain-puller removes the chain from a cyclist, he must go to the mechanic's workshop to place the chain properly. Every 3 min the roles will be changed.	20 min
In the heights. In a large group of students, each student will have to make the same zig-zag route between different cones, adjusting the saddle to the bike on different heights. Students must find their correct heights of the saddle.	12 min
Whose "bike" is it? Students will be organized in 4 teams (2 opposing groups). To each group will be given a bicycle and without theopposing team seeing it, they must adjust the saddle of the bicycle to one of its members. Subsequently, the opposite team will have to try to guess who thatbeis fitted for. The activity will be repeated 3-4 times according to time.	12 min

3th Session	Bikeability program				
Location	Open-space	**Time**	55 min	**Nº Participants**	22
Objective	• To develop basic skills to learn to ride the bicycle. • To learn to overcome the possible architectural barriers that are presented to us by riding the bicycle.				
Material	1 whistle per teacher, 1 bicycle and helmet per student, cones, ropes, chalk, 4 pikes, 2 mats, 2 balls, 2 rings				

Session development	
Activities	**Time**
Climb and start by bicycle (2 groups). In order to analyze the student`s level, we will start with a brief explanation of how to get on the bike. All students will be placed at the end of the track. The teacher will assign to each student a number (nº 1 or 2). When the teacher indicates one of the groups with the assigned number, it will have to move to the other side of the track.	10 min
Let's shift gears. In a large group. It is intended that the students become familiar with the gears of the bicycle (harder = descents or straights with less cadence; softer = climbs or straights with greater cadence). Each student on his bicycle, circling the track clockwise, adjusts their gears to the teacher's signal.	5 min
At the command of the whistle. The students have to attend to the sound signals transmitted by the teacher and perform the corresponding actions, being 1 beep = brake + 3 static seconds + start, 2 beeps = 5 seconds marking with a curved arm + make curve, 3 beeps = circular standing with change of pace, 4 = change of gear, and the students must do what is ordered. This exercise aims to experience actions and react to external stimuli while cycling on public roads.	10 min
Turtle race. In a large group. The students are placed at one end of the track and at the signal of the teacher, they must move to the other side as slowly as possible without putting their foot on the ground and without going around in a circle.	5 min
Circuit "the mini-city". Individually moving each student on their bicycle perform the assigned circuit. 2 circuits of different level (started and advanced) are established to which the students will be assigned without knowing the level of each one (however, during the activity the appropriate changes are made depending on the progress of each student). The circuits are as follows: STARTED LEVEL 1. Zigzag between cones 2. Pass between 2 parallel lines 3. Yield at a crosswalk 4. Pass over 2 strings that generate instability 5. Make a roundabout 6. Pass over 2 strings that generate instability ADVANCED LEVEL 1. Zigzag between cones 2. Pass between 2 parallel lines narrower than those of the previous circuit 3. Pass over a greater number of strings generating more instability	25 min

4th Session	Bikeability program				
Location	Open-space	**Time**	55 min	**Nº Participants**	22
Objective	• Put into practice the contents learned. • Strengthen knowledge through a real start-up. • Solve the possible difficulties that arise in a real context. • Develop the ability to make decisions and acquire critical aspects.				
Material	Card (bike license) for each student, stamps for each station. 1 bicycle and helmet for each student, 1 chalk, 1 long rope, 1 bucket, balls, cones, ribbons with parts of the bicycle.				

Session development	
Activities	**Time**
The students will be divided into 5 groups. Each group will be given a map with different posts marked with a certain order to make each of them. Until the group achieves the goal of one post, it will not be able to move on to the next. The team that finishes all the posts before will win. Subsequently, a joint activity will be carried out between all the groups. Each student will be given a bike license and will be sealed each time they overcome a post	
Post 1. Hung by bikes. (In small groups). The teacher will tie a rope between two points. Different ribbons will be hung in this rope, which will have a part of the bicycle written. Each student must leave from one side to the other, taking a tape along the way. When you reach the other end, you will need to place the tape on the appropriate part of your bike. Objective: Put all the tapes in the corresponding place on the bike.	8 min
Post 2. Catch-catch. (In small groups). Traditional "catch-catch" will be played mounted on a bicycle in a limit space. If a student is caught by the pursuer, roles will be swapped. If a player leaves the lines of the field, the role will also be exchanged with the pursuer. Later, instead of exchanging roles, all the students who have been caught will become pursuers and they will accumulate so that only one student remains. Objective: That all the students are caught.	8 min
Post 3. Super bikeability. (In small groups). The group will try to complete a small circuit in 3 different ways: 1. In less than a certain time; 2. Without a hand; 3. Without a foot. Objective: All the students of the group must try the 3 ways to make the circuit, but with only one member of the group getting it, they will achieve the objective of the post.	8 min
Post 4. Pac-Man. (In small groups). In a space where there are clearly marked lines, one person will be the Pac-Mac eater and the rest the coconuts. They will only be able to move along the lines. When they turn, they must mark with their arms the direction they are going to go. Initially the Pac-Man will be a person to later accumulate students until all / as become a Pac-Man. Objective: The team must endure at least one member alive for 1 minute.	8 min
Post 5. Pelotacleta. (In small groups). The group must transport (one by one and with only one ball per trip) from one line to the other, a certain number of balls, but for these balls to be valid, they must place them in a bucket. Objective: to dunk at least a number of balls that corresponds to the number of	8 min
Great Game. (5 groups). Groups will be placed at one end of the track. In front of each group, at a distance of 20 meters a cone will be placed. Teachers will launch a question and 30 seconds will be given to discuss the question between the groups. After 30 seconds the teacher will whistle and a representative of each group must run to his cone and touch it. The first to touch the cone will be the first to respond out loud. If the question fails the second to arrive, it will try to answer and so on. ***Note:** a different representative must come out in each round.	12 min

5

GOOD PRACTICES

In the context of implementing strategies for design ACS Programs, there are some good practices in different countries/cities that offer many examples to be followed. Some of these are set out below:

WALKING to school

Starting a walking school bus	http://www.walkingschoolbus.org/
Walking to School	http://eustarsmadrid.blogspot.com/2015/03/que-es-un-pedibus.html
Games to promote walking to school	https://www.caminoescolarseguro.com/otras-iniciativas.html https://www.trafficsnakegame.eu/spain/

CYCLING to school

Bikeability (UK)	https://www.bikeability.org.uk/
Bicycle promotion program (France)	https://sports.gouv.fr/savoir-rouler-a-velo/article/presentation
Video lessons: cycling safe (Portugal)	https://www.fpcub.pt/2021/09/2o-bicircular-oficina-de-aprendizagem-de-circulacao-com-bicicleta
Cycling Embassy of Denmark	https://cyclingsolutions.info/cycling-children-cycle-training-and-traffic-safety/
Guide for bicycle users (Spain)	https://www.dgt.es/conoce-la-dgt/que-hacemos/educacion-vial/ https://www.dgt.es/export/sites/web-DGT/.galleries/downloads/conoce_la_dgt/que-hacemos/educacion-vial/jovenes/ESO_movilidad_sostenible_segura/2019-04_mat-libreconfig_MOV-SEGURA-SOST-guia-profesor.pdf https://www.dgt.es/export/sites/web-DGT/.galleries/downloads/conoce_la_dgt/que-hacemos/educacion-vial/jovenes/bicicleta/Como-formar-ciclistas-en-linea.pdf
STARS Project (Spain)	https://starsespaña.dgt.es/
Profith Research Group (Spain)	https://profith.ugr.es/paco

REFERENCES

1. World Health Organization. and C. Ebook Central Academic, More active people for a healthier world : global action plan on physical activity 2018-2030. 2018, Geneva: World Health Organization.

2. Pizarro, A.N., et al., Gender Differences in the Domain-Specific Contributions to Moderate-to-Vigorous Physical Activity, Accessed by GPS. J Phys Act Health, 2017. 14(6): p. 474-478.

3. Steell, L., et al., Active commuting is associated with a lower risk of obesity, diabetes and metabolic syndrome in Chilean adults. J Public Health (Oxf), 2018. 40(3): p. 508-516.

4. Henriques-Neto, D., et al., Active Commuting and Physical Fitness: A Systematic Review. Int J Environ Res Public Health, 2020. 17(8).

5. Pizarro, A.N., et al., Is walking to school associated with improved metabolic health? Int J Behav Nutr Phys Act, 2013. 10: p. 12.

6. Domazet, S.L., et al., Associations of Physical Activity, Sports Participation and Active Commuting on Mathematic Performance and Inhibitory Control in Adolescents. PLoS One, 2016. 11(1): p. e0146319.

7. Haapala, E.A., et al., Associations of physical activity and sedentary behavior with academic skills--a follow-up study among primary school children. PLoS One, 2014. 9(9): p. e107031.

8. Sun, Y., Y. Liu, and F.B. Tao, Associations Between Active Commuting to School, Body Fat, and Mental Well-being: Population-Based, Cross-Sectional Study in China. J Adolesc Health, 2015. 57(6): p. 679-85.

9. Marques, E.P., AN; Teixeira, J, Ribeiro JC; Santos MP., Active travel to school and independent mobility in Portuguese children. European Journal of Epidemiology, 2012. 27: p. S197.

10. Litman, T., Transportation cost and benefit analysis Guidebook – Techniques, estimates and implication. 2009, Victoria Transport Policy Institute: Victoria, BC, Canada.

11. Ferri-García, R., et al., Data mining techniques to analyze the factors influencing active commuting to school. International Journal of Sustainable Transportation, 2020. 14(4): p. 308-323.

12. Garrad, J., Active transport: Children and young people. An overview of recent evidence, in Vichealth. 2009, Gov Australia.

13. Sallis, J.F., et al., An ecological approach to creating active living communities. Annu Rev Public Health, 2006. 27: p. 297-322.

14. Lawrence, E., et al., Health Lifestyles and the Transition to Adulthood. Socius, 2020.

15. Jones, R.A., et al., Interventions promoting active transport to school in children: A systematic review and meta-analysis. Prev Med, 2019. 123: p. 232-241.

16. World Health Organization, Promoting physical activity through schools: a toolkit. 2021.