DAYLIGHTING RIVERS
SCIENCE EDUCATION FOR CIVIC ECOLOGY

River effects on microclimate
WORKSHEET 1A

Time available: 30 minutes

Location: in the classroom

Work-group: 2 groups of students working on the map. At the end, you share the opinion with the other group, and prepare a final version.

"Which types of areas are the hottest in your town? And the coolest ones?"

"Where would you investigate the effect of the river and other cooling elements, on climate conditions and thermal perceptions?"

Decide where (on the map). Give an explanation to your decisions and list the materials you will need.

River effects on microclimate
WORKSHEET 1B

Time available: 35 minutes

Location: in the classroom

Work-group: 2 groups of students defining the method. At the end, you share the opinion with the other group, and prepare a final version.

"Which types of areas are the hottest in your town? And the coolest ones?"

"How would you investigate the effect of the river and other cooling elements, on climate conditions and thermal perceptions?"

Describe and list the materials you will need.

River effects on microclimate
WORKSHEET 2 for the field trip

Time available: 60 minutes

While monitoring the air parameters, fill in this questionnaire about the personal perception of the environmental conditions at each stop that you have identified on the map.

Date: …………… Time: …………… Age: ……………		**Gender** ☐ Male ☐ Female

Clothing	☐ T-shirt
	☐ Shirt (Short/ Long/No sleeves)
	☐ Sweater (thin/normal/thick)
	☐ Shorts, Pants (thin/normal/thick),
	☐ Skirt (thin/thick),
	☐ Dress (thin/thick)
	 Colour
	   ☐ dark
	   ☐ light
		☐ Jacket (thin/thick)
		☐ Coat
		Colour
		   ☐ dark
		   ☐ light
		☐ Shoes (thin/thick soled)
		☐ Boots
		☐ Socks (long / short)
		☐ Sunglasses
		☐ Scarf

Type of food / drink taken within 15 minutes prior to the walk **Cold** YES ☐ NO ☐ **Warm** YES ☐ NO ☐		

STOP A – Evaluation of the environmental conditions

Environmental conditions	**1. Indicate how you currently feel**				
Time:	Cold	Cool	Neither cold or warm	Warm	Hot
Air temperature:	**2. How would you prefer to feel at this moment?**				
Air humidity:	Cooler		No change		Warmer
Shade/Sun	**3. How do you think that your thermal condition would be improved at this moment?**				
o Big road o Narrow road o Park o River bank ☐ With trees ☐ Without trees	In relation to air temperature ☐ higher ☐ no change ☐ lower	In relation to humidity ☐ higher ☐ no change ☐ lower	In relation to wind speed ☐ higher ☐ no change ☐ lower	In relation to irradiance ☐ higher ☐ no change ☐ lower	

1. Indicate the most ANNOYING variable in this moment			
Temperature	Humidity	Sun	Lack of sun
Air motion	Lack of wind	None	Other (indicate):

2. Indicate the most PLEASANT variable in this moment			
Temperature	Humidity	Sun	Lack of sun
Air motion	Lack of wind	None	Other (indicate):

3. How do you judge the overall condition?	
Acceptable	Non acceptable

STOP B – Evaluation of the environmental conditions

Co-funded by the
Erasmus+ Programme
of the European Union
Project 2017-1-IT02-KA201-036968 - IO3

DAYLIGHTING RIVERS
SCIENCE EDUCATION FOR CIVIC ECOLOGY

Environmental conditions	4. Indicate how you currently feel				
Time: ……………………..	Cold	Cool	Neither cold or warm	Warm	Hot
Air temperature:	**5. How would you prefer to feel at this moment?**				
Air humidity:	Cooler		No change		Warmer
Shade/Sun	**6. How do you think that your thermal condition would be improved at this moment?**				
o Big road	In relation to air temperature □ higher □ no change □ lower		In relation to humidity □ higher □ no change □ lower	In relation to wind speed □ higher □ no change □ lower	In relation to irradiance □ higher □ no change □ lower
o Narrow road					
o Park					
o River bank					
□ With trees					
□ Without trees					

7. Do you feel any difference compared to the previous site?				
Colder	Cooler	No change	Warmer	Hotter

8. Why? Is there any different element in the space around you?

9. Indicate the most ANNOYING variable in this moment			
Temperature	Humidity	Sun	Lack of sun
Air motion	Lack of wind	None	Other (indicate):

10. Indicate the most PLEASANT variable in this moment			
Temperature	Humidity	Sun	Lack of sun
Air motion	Lack of wind	None	Other (indicate):

11. How do you judge the overall condition?	
Acceptable	Non acceptable

STOP C – Evaluation of the environmental conditions

Environmental conditions	1. Indicate how you currently feel				
Time: ……………………..	Cold	Cool	Neither cold or warm	Warm	Hot
Air temperature:	**2. How would you prefer to feel at this moment?**				
Air humidity:	Cooler		No change		Warmer
Shade/Sun	**3. How do you think that your thermal condition would be improved at this moment?**				
o Big road	In relation to air temperature □ higher □ no change □ lower		In relation to humidity □ higher □ no change □ lower	In relation to wind speed □ higher □ no change □ lower	In relation to irradiance □ higher □ no change □ lower
o Narrow road					
o Park					
o River bank					
□ With trees					
□ Without trees					

4. Do you feel any difference compared to the previous site?				
Colder	Cooler	No change	Warmer	Hotter

5. Why? Is there any different element in the space around you?

Co-funded by the
Erasmus+ Programme
of the European Union
Project 2017-1-IT02-KA201-036968 - IO3

DAYLIGHTING RIVERS
SCIENCE EDUCATION FOR CIVIC ECOLOGY

6. Indicate the most ANNOYING variable in this moment

Temperature	Humidity	Sun	Lack of sun
Air motion	Lack of wind	None	Other (indicate):

7. Indicate the most PLEASANT variable in this moment

Temperature	Humidity	Sun	Lack of sun
Air motion	Lack of wind	None	Other (indicate):

8. How do you judge the overall condition?

Acceptable	Non acceptable

STOP D – Evaluation of the environmental conditions

Environmental conditions	1. Indicate how you currently feel				
Time: ……………………..	Cold	Cool	Neither cold or warm	Warm	Hot
Air temperature: Air humidity: Shade/Sun	2. How would you prefer to feel at this moment?				
	Cooler		No change		Warmer
o Big road o Narrow road o Park o River bank ☐ With trees ☐ Without trees	3. How do you think that your thermal condition would be improved at this moment?				
	In relation to air temperature ☐ higher ☐ no change ☐ lower	In relation to humidity ☐ higher ☐ no change ☐ lower	In relation to wind speed ☐ higher ☐ no change ☐ lower	In relation to irradiance ☐ higher ☐ no change ☐ lower	

4. Do you feel any difference compared to the previous site?

Colder	Cooler	No change	Warmer	Hotter

5. Why? Is there any different element in the space around you?

6. Indicate the most ANNOYING variable in this moment

Temperature	Humidity	Sun	Lack of sun
Air motion	Lack of wind	None	Other (indicate):

7. Indicate the most PLEASANT variable in this moment

Temperature	Humidity	Sun	Lack of sun
Air motion	Lack of wind	None	Other (indicate):

8. How do you judge the overall condition?

Acceptable	Non acceptable

LAST STOP – Evaluation of the environmental conditions

Environmental conditions	1. Indicate how you currently feel				
Time: …………………….. Air temperature: Air humidity: Shade/Sun 　o　Big road 　o　Narrow road 　o　Park 　o　River bank 　□　With trees 　□　Without trees	Cold	Cool	Neither cold or warm	Warm	Hot

2. How would you prefer to feel at this moment?

Cooler	No change	Warmer

3. How do you think that your thermal condition would be improved at this moment?

In relation to air temperature □ higher □ no change □ lower	In relation to humidity □ higher □ no change □ lower	In relation to wind speed □ higher □ no change □ lower	In relation to irradiance □ higher □ no change □ lowerl

4. Do you feel any difference compared to the previous site?

Colder	Cooler	No change	Warmer	Hotter

5. Why? Is there any different element in the space around you?

6. Indicate the most ANNOYING variable in this moment

Temperature	Humidity	Sun	Lack of sun
Air motion	Lack of wind	None	Other (indicate):

7. Indicate the most PLEASANT variable in this moment

Temperature	Humidity	Sun	Lack of sun
Air motion	Lack of wind	None	Other (indicate):

8. How do you judge the overall condition?

Acceptable	Non acceptable

9. How many different thermal sensations did you perceive during the walk?

10. Excluding the POINTS, have you noticed other different conditions along the way? (if so, indicate on the map in which point /i)
Yes 　□　　No □

11. What did you like most along the way?

Shade	Sun	Clouds	Strong wind
Breeze	Lack of wind	Other: _____	

12. Thermally speaking, indicate the most PLEASANT aspect during the walk

Aspect _____Position along the walk _____

13. Thermally speaking, indicate the most ANNOYING aspect during the walk

Aspect _____Position along the walk _____

14. Did you take any initiative to increase your sense of well-being during the journey? (ingested liquids/foods, changed clothing....) _____

River effects on microclimate
WORKSHEET 3

After the data analysis, you should be able to answer these questions:

Which is the hottest stop along the route? What are the characteristics?

Which variable was the most annoying for most respondents by the river?

Which variable was the most pleasant by the river?

Which variable is the most annoying farther from the river for most respondents? What are the characteristics?

Which variable is the most pleasant farther from the river for most respondents? What are the characteristics?

Are there differences between males and females in the thermal perception?

"In urban planning, what kind of areas are important to provide the best thermal comfort?"

Design on the map of your town where you would include green or blue infrastructures for improving the thermal comfort.