



INVISIBLE THREAT TO THE ENVIRONMENT

Primary School Banija, Croatia

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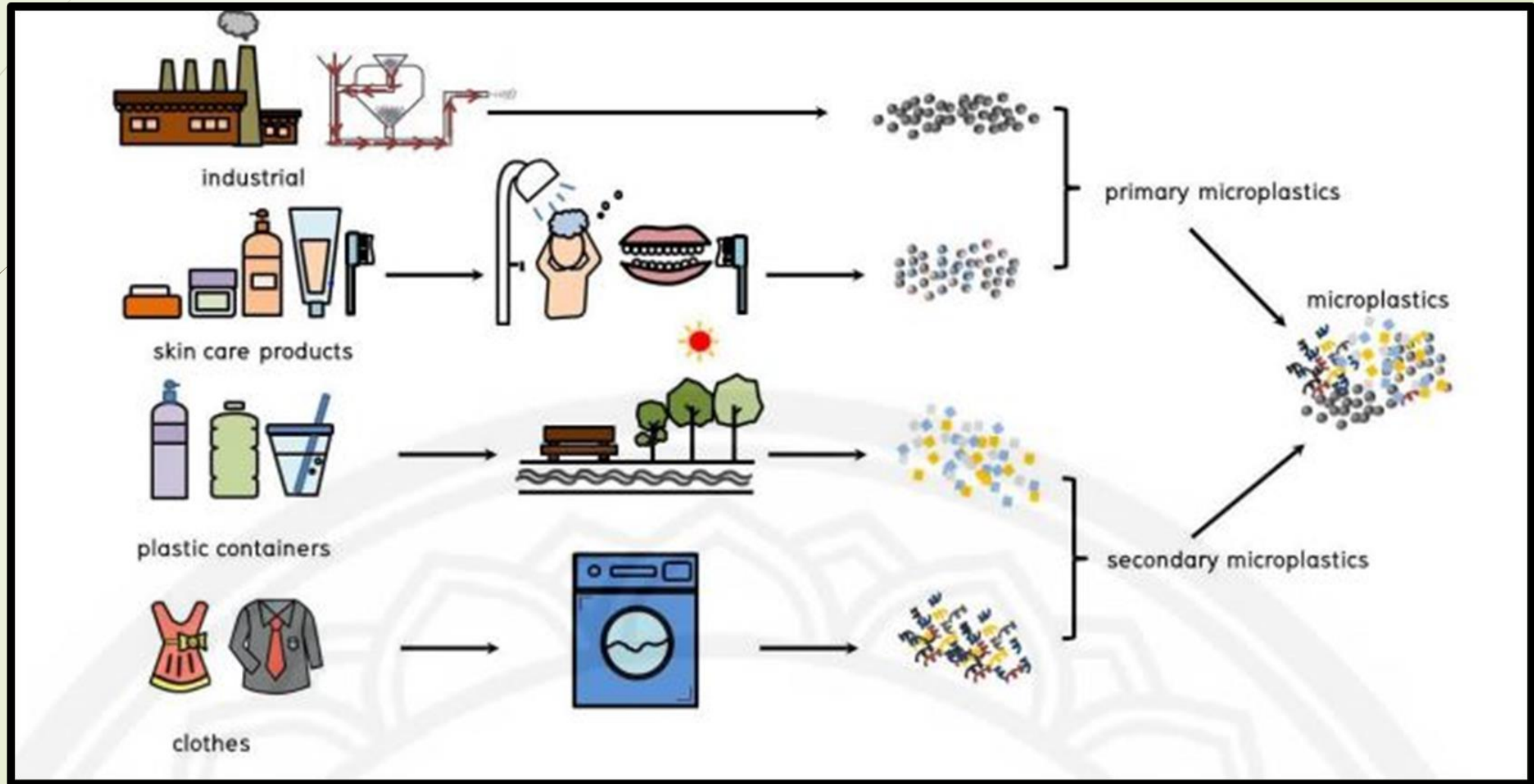
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INTRODUCTION

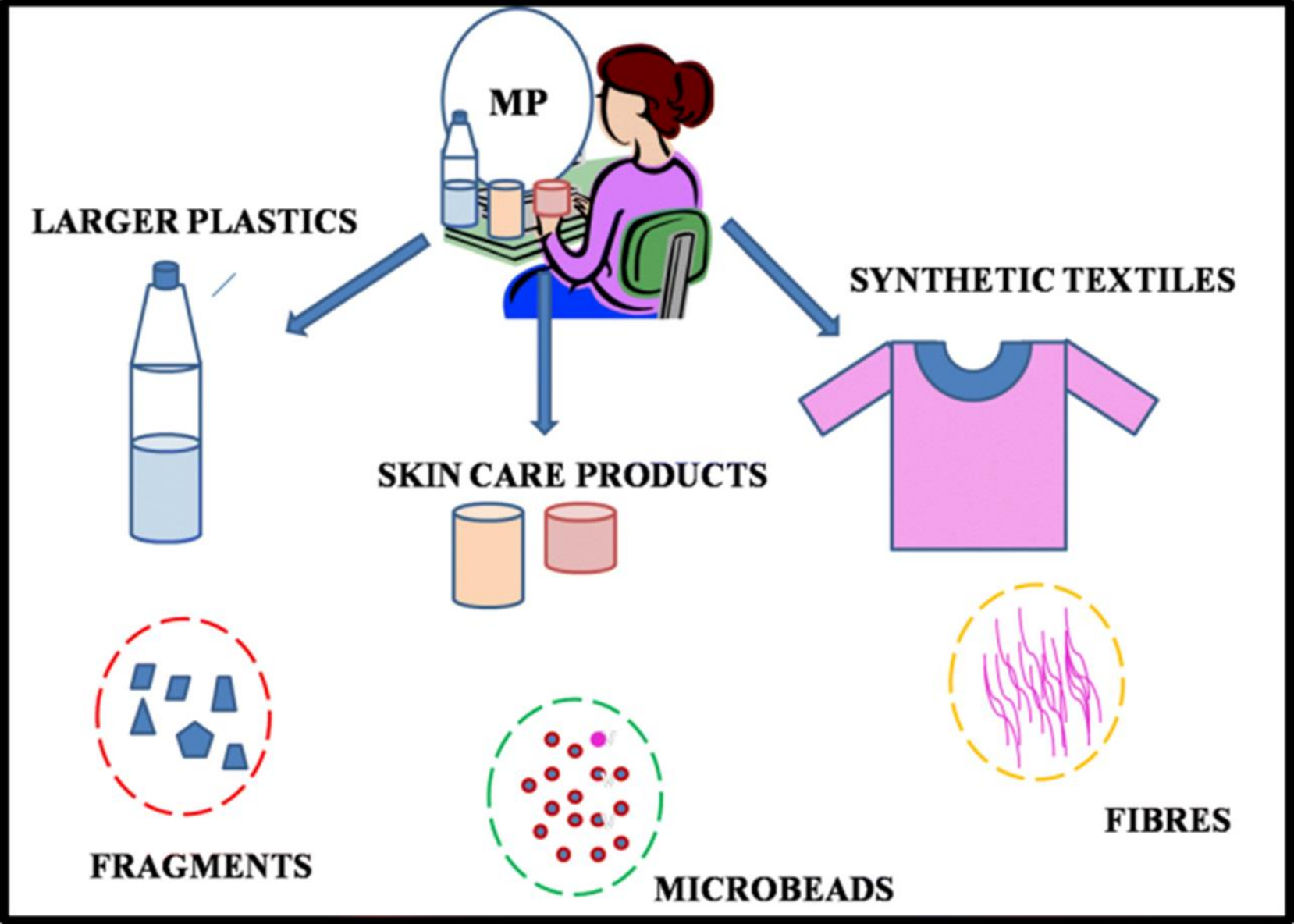
- ▶ The GLOBE group has been monitoring the presence of microplastics in the river Kupa since 2020
- ▶ and microplastic presence in the air of the school premises during short periods in 2023/2024



What is microplastic ?



What is microplastic ?





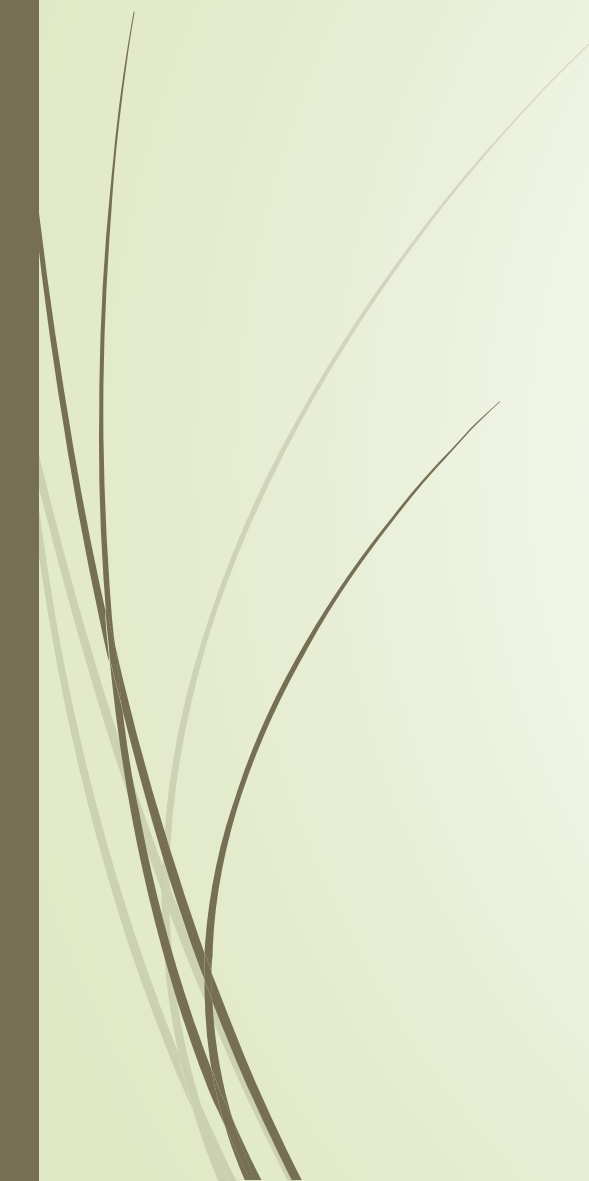
RESEARCH QUESTIONS



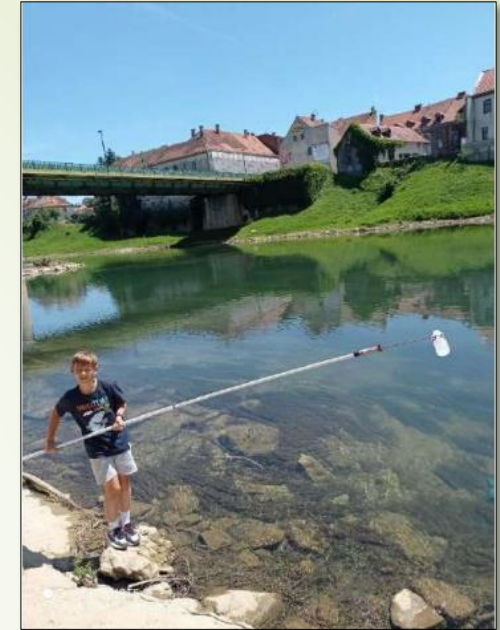
- Will we determine the presence of microplastics in the river Kupa on two research locations ?
- Are there microplastics in the air examined on the school premises (three school classrooms, the school kitchen and the school hall) in two research period?
- What types of microplastic particles will we find in the tested samples in the river Kupa and in the air on the tested school premises?



HYPOTHESIS

- Microplastics will be found in all of the samples taken in the river Kupa as well as in the air on the examined school premises.
 - We will find the most microplastic particles and microplastic fibers.
- 

RESEARCH METHODS



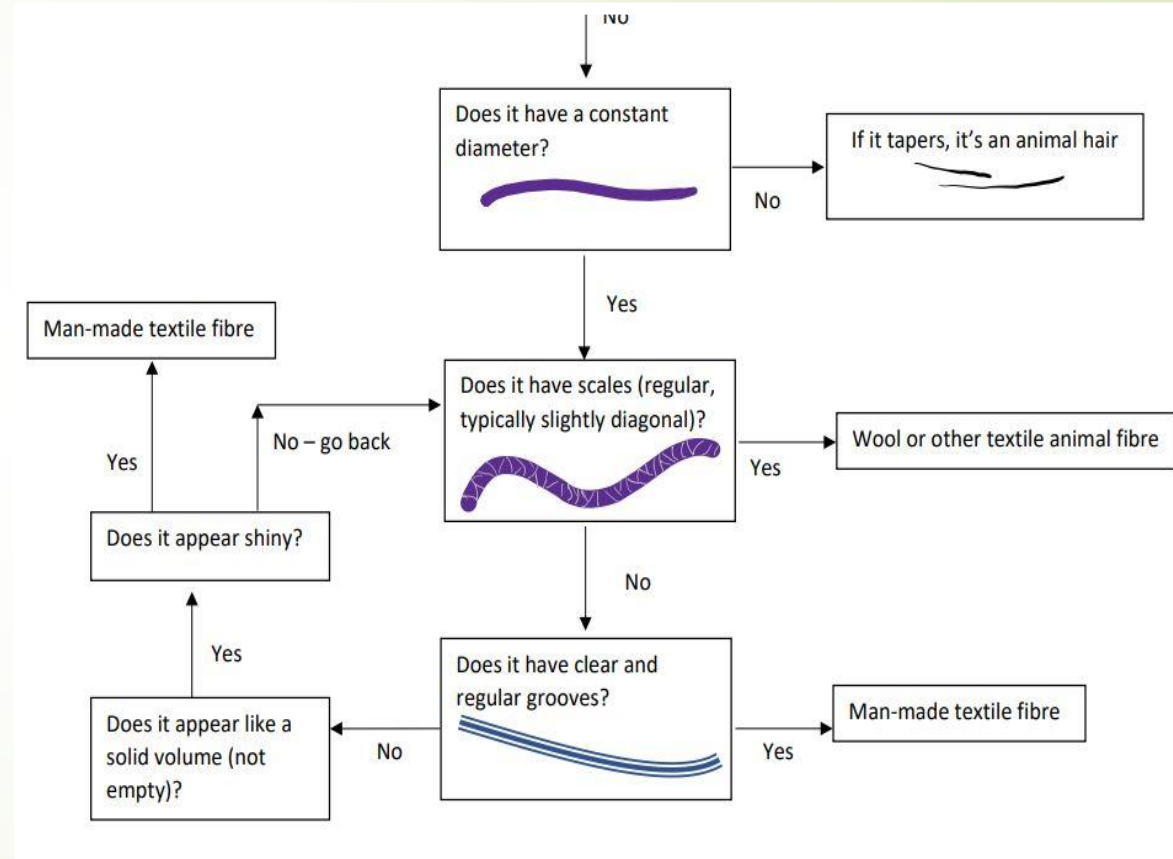
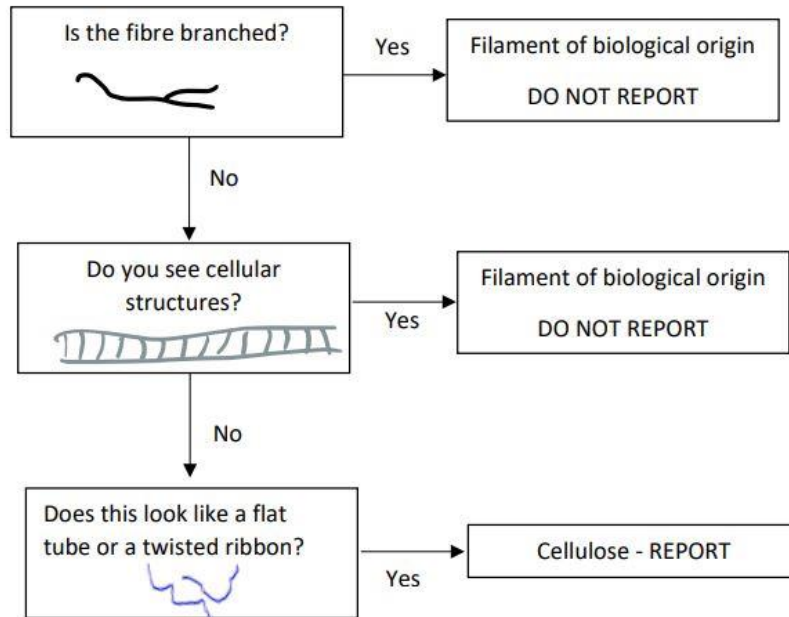
- Sampling
- Filtration
- Microscoping
- Statistical data processing



RESEARCH METHODS



When you see a fibre, ASK YOURSELF:



DATA ANALYSIS

SYNTHETIC FIBER



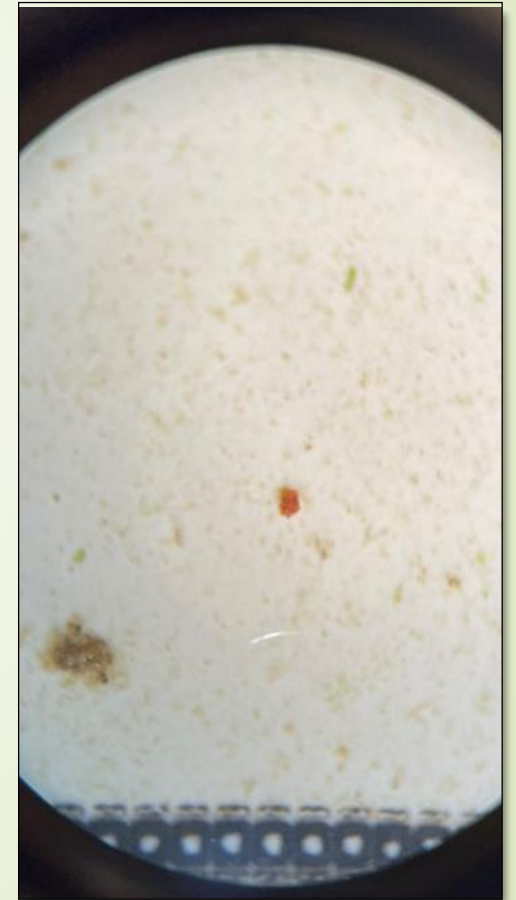
SYNTHETIC FIBER



CELULOSE FIBER



PLASTIC PARTICLE



DATA ANALYSIS

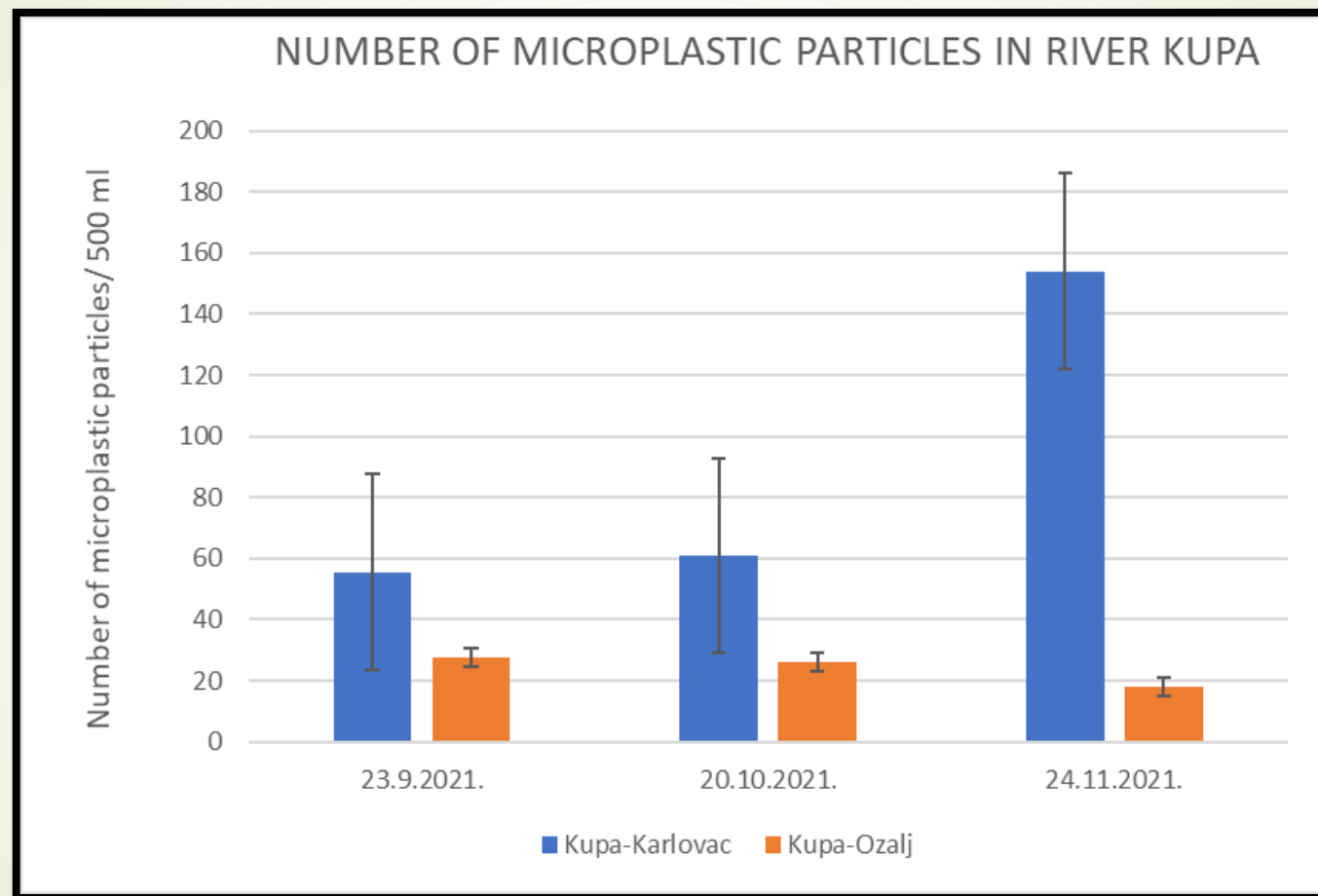


Figure 1. The mean value (\pm standard deviation) of the number of microplastic particles in 500 ml of water from the river Kupa in both Karlovac and Ozalj stations during the autumn period of 2021

DATA ANALYSIS

Table 1. Share of individual types of microplastics in the total number of microplastic particles found at both locations in Kupa river

CELULOSE FIBERS	SYNTHETIC FIBERS	PLASTIC PARTICLES
97,22%	2,49%	0,29%

DATA ANALYSIS

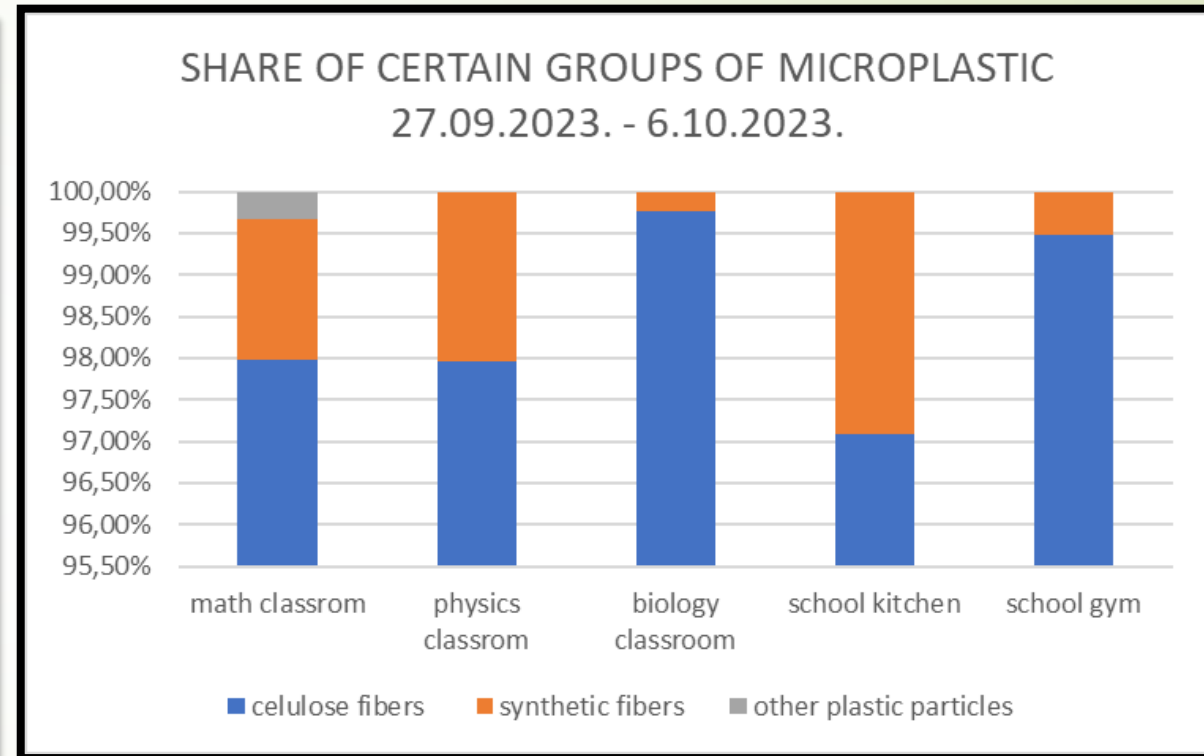
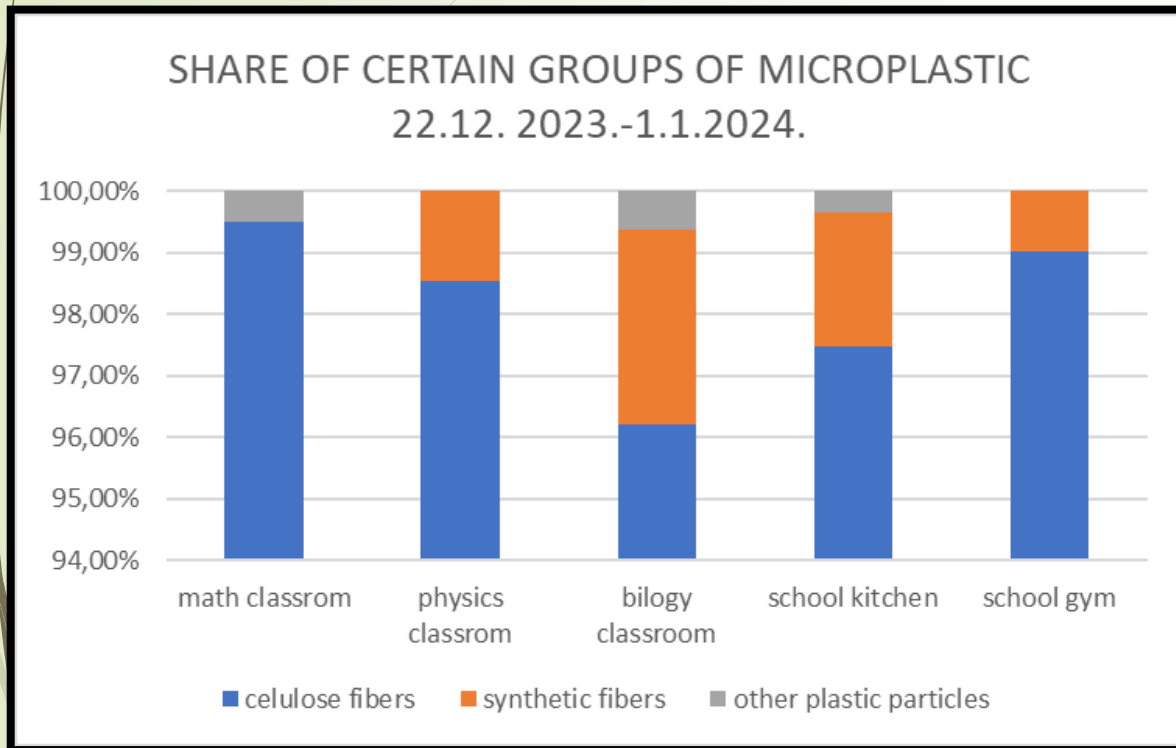


Figure 2. The of certain types of microplastic in the total number of fibers and other microplastics particles found in the studied school premises in two periods

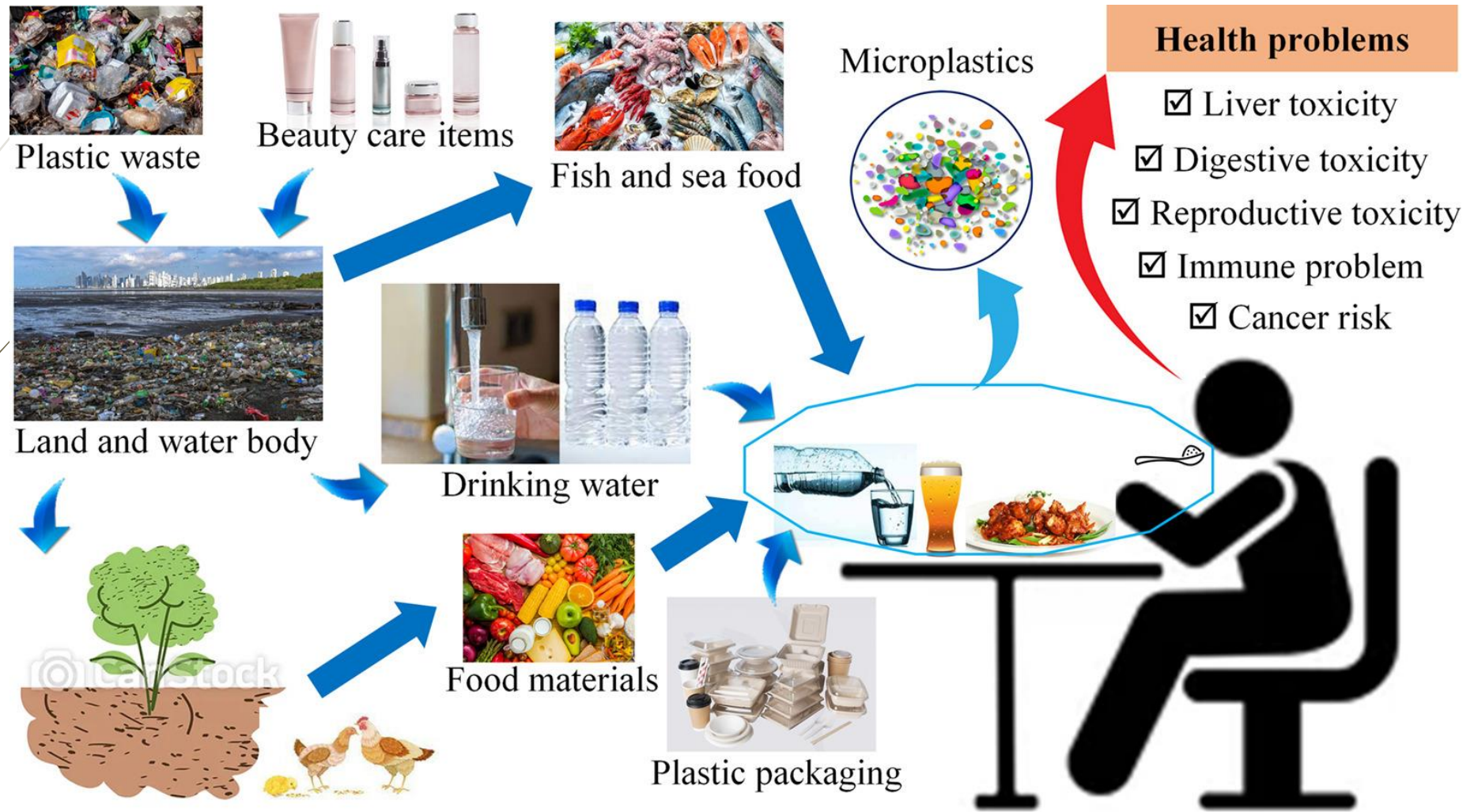


CONCLUSIONS



- All the samples taken from the river Kupa during the investigated period on two locations contain microplastics, as well as samples taken from the air on school premises in two research period.
- In the interior of our school, microplastic pollution is present, and the amount of microplastic varies in the examined rooms.
- Textile fibers are one of the main factors of microplastic pollution in the river Kupa and in the examined school premises.

Microplastics and human health



LITERATURE

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What we did after the research?



Presentation of our research in the local community and school in March 2024

MIKROPLASTIKA

Mikroplastiku čine mali dijelovi plastičnog materijala, obično manji od 5 mm.

Prema tipu mikroplastike, postoji primarna i sekundarna mikroplastika.

LAGER PLASTIK

SYNTHETIC TEXTILES

Primarna mikroplastika u okolišu izlazi direktno iz tvornica, prilikom proizvodnje plastičnih produkata.

Sekundarna mikroplastika nastaje usitnjavanjem ili degradacijom većih komada otpadne plastike u okolišu, abrazijom automobilskih guma, trošenjem brodske opreme i ribolovnog alata te spuštanjem mikrovlakana prilikom pranja rublja.

Mikroplastika se u okolišu može naći u različitim oblicima kao što su sfere, peleti, nepravilni fragmenti i vlakna, a najviše su zastupljena vlakna, zatim granule i filmovi/tanke prevlake.

MIKROPLASTIKA U RIJEZI KUPI



Tablica 1. Srednja vrijednost broja vlakana i ostalih čestica mikroplastike/m³ u sapljivim prostorijama u razdoblju od 27. 9. 2023. do 6. 10. 2023. Za vrijeme trajanja nastave.

Prostorija	Srednja vrijednost površine otvora staklenj/m ²	Površina prostorije /m ²	Srednja vrijednost broja vlakana i ostalih čestica mikroplastike u staklenjci	Prosječan broj vlakana i ostalih čestica mikroplastike u prostoriji/m ³
Učionica matematika	3,87*10 ⁻³	59,1	295	7,6*10 ¹
Učionica fizike	3,95*10 ⁻³	56,5	146,5	3,7*10 ¹
Učionica biologije	3,92*10 ⁻³	59,1	205,5	5,2*10 ¹
Škola kuhinja	3,89*10 ⁻³	58,6	136,5	3,5*10 ¹
Škola dvorana	3,93*10 ⁻³	287,4	368,6	93,8*10 ¹

Sustainable fashion; recreated workshops at school in April 2024



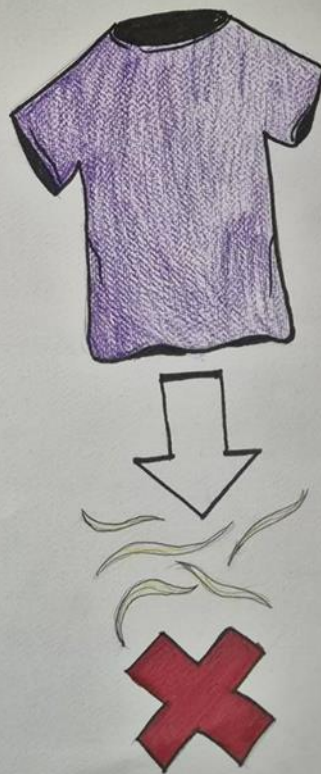
Cleaning action along the waterside Kupa River in May 2024



Exchange of used clothes at the school Christmas fair 2024 and the presentation of an educational film about microplastic



**MIKROPLASTIKA NIJE FORA,
UNIŠTAVA SVAKOG ŽIVOG STVORA!**



**For less
microplastics
in the
environment
let's shop
smart and
sustainably!**