



## Don't waste waste!



Is waste a problem? Often it is: the plastic 'soup' in the oceans is a major problem. Worldwide, people are looking for solutions for this.

In 2021, a deposit was introduced on small plastic drinking bottles in the Netherlands, so that the cans do not end up in the sea. But waste can also be a problem closer to home and school: chewing gum and cigarette butts on the street, litter around schools and supermarkets, leftover food that attracts rats, and so on.

You can also deal with waste in a positive way: by handing it in separately, as a lot of material can be reused (recycled). Then waste becomes a valuable raw material.

In this assignment you will come up with a plan to improve the waste situation in and around your school. First, you will look at data about waste in the Netherlands, then you do research in and around your school. You collect data and analyze it. As a final product, you advise your school how to deal with waste (even) better.

## Part 1: Entry assignments

### Household waste

In the Netherlands, household waste is often collected separately. At home you do this, for example, by keeping paper and glass separate and maybe you have a separate bin for vegetable, fruit and garden waste. Some of the household waste is collected by the garbage truck, another part you take care of yourself, for example by bringing it to the glass recycling container.

#### **Entry assignment 1:**

Fill in a table about your household waste. How much waste do you produce in a week?

Type of waste	Is collected	Take away	Estimated number of kg per week

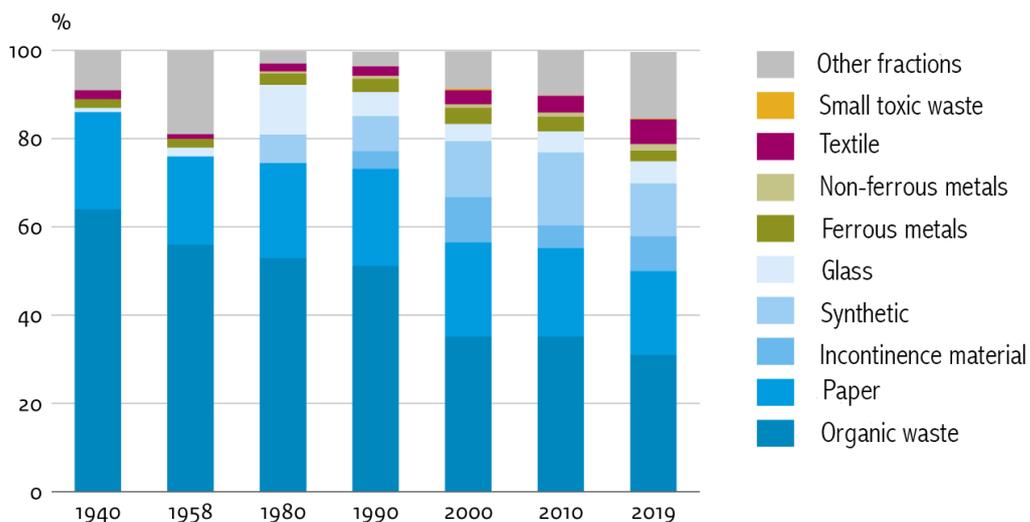
#### **Entry assignment 2:**

The Central Bureau of Statistics (CBS) collects all kinds of data in the Netherlands, including on waste. This figure appeared on the CBS website in March 2021:

#### *Largest increase in household waste in almost 25 years*

In 2020, 9.1 billion kilograms of household waste was collected, 521 kilograms per inhabitant. A year earlier, this was just under 8.5 billion kilograms (492 kilograms per inhabitant). This means that this mountain of waste has grown by 6.8 percent, the largest increase since 1997.

#### **Largest increase in household waste in almost 25 years**



Source: CBS; Rijkswaterstaat

CBS/mrt21  
www.clo.nl/nl01q118

- You can see in the text above the figure that the amount of household waste has increased enormously. Does this chart match the text above it? Explain why or why not.
- Compare the composition of the household residual waste with the composition of the waste that you produce yourself. What do you notice?
- Which types of waste have increased the most in the last 20 years? Explain.
- You can tell even more about this chart. Write three conclusions that you can draw from this chart.

## Litter

In addition to household waste that is neatly disposed of, 'households' also create litter. Every year, litter is counted several times a year in various places throughout the country. An annual report is made of this (in Dutch):

Fractie (aantallen) per gebiedstype meetronden 1 t/m 3 (voor invoering 16 nieuwe fracties)															(Tabel 1 van 2)					
Hoofdcategorie	Verpakking	Niet verpakking	Subcategorie	Kernwinkelvegebied	Buurtwinkelvegebied I	Buurtwinkelvegebied II	Woonwijk I	Woonwijk II	Woonwijk III	Bedrijventerrein	Waterrecreatieterrain	Recreatieterrain (niet-zijnde waterrecreatie)	Horeca en uitgaanscentra	Openbaar vervoergebied	Verzorgingslocaties	Onderwijsinstelling en omgeving	Ontsluingsweg	Evenement- en sportcomplex en omgeving	Totaal	
<b>Klein en organisch</b>																				
	X		kauwgom	1456	1107	692	499	312	155	283	151	60	1559	2618	466	610	373	699	11040	
	X		sigarettenpeuken	2981	3007	1256	1345	1120	711	1650	1198	852	3401	4487	4188	1442	1421	2305	31364	
	X		voedselresten	73	94	46	88	27	47	93	64	74	84	96	258	38	110	115	1307	
<b>Drank- en eetverpakkingen</b>																				
Take-away (eetverpakkingen)	X		(drink/koffie/ijs) bekers	158	158	94	107	114	46	384	118	82	177	252	340	192	256	250	2728	
	X		(friet)bakjes	65	75	24	32	58	11	68	24	13	92	88	151	31	54	86	872	
	X		zakken/ (omverpakkingen)	88	98	35	64	57	17	102	58	30	110	155	180	62	81	117	1254	
		X	servetten	234	180	79	136	126	53	155	134	72	238	224	683	112	137	197	2760	
		X	rietjes	98	144	41	79	88	33	72	59	24	168	140	169	65	112	131	1423	
Snoepen		X	overig (vorkjes etc.)	307	165	82	93	146	20	201	174	47	323	275	500	86	109	177	2705	
	X		snoepwikkels/zakjes etc.	632	884	652	670	652	311	706	656	431	584	1317	1405	731	854	960	11445	
		X	ijsstokjes/lollystokjes	155	187	116	116	104	64	66	95	45	168	195	122	95	68	119	1715	
Drinken (kleine drank-verpakkingen)	X		glazen fles	28	32	22	42	35	19	34	56	44	65	82	154	23	55	60	751	
	X		blikjes	245	426	228	375	294	200	552	299	293	366	638	686	325	764	522	6213	
	X		drankenkartons	21	37	19	36	31	24	44	39	26	28	60	53	48	70	75	611	
	X		kunststof flesjes < 1 liter	80	151	72	104	124	76	212	116	81	89	249	290	135	261	268	2308	
	X		kunststof flesjes 1 liter of meer	9	6	4	7	4	2	11	16	8	7	12	95	9	19	20	229	
	X		knijpverpakkingen/zakjes	13	52	15	25	20	11	17	8	14	19	47	24	19	40	25	349	
	X		overig (doppen/sluitingen)	297	293	146	179	158	68	180	216	220	353	320	530	181	188	270	3599	
Overige verpakkingen (Overige drank- en eetverpakkingen of supermarktgerelateerde grootverpakkingen)	X		glas	56	37	64	54	44	27	29	27	24	108	72	54	19	26	57	698	
	X		kunststof	434	668	347	388	407	194	723	385	367	469	784	1589	430	564	699	8448	
	X		plastic tas (winkel + hemdjes)	43	57	31	51	28	8	39	40	25	42	75	76	33	69	42	659	
	X		papier/karton	211	305	133	170	187	41	234	167	111	237	210	621	112	163	214	3116	
X		metaal/blik	120	184	129	134	121	73	169	166	99	200	242	400	162	160	170	2529		
X		rookwarenverpakkingen	142	185	124	147	128	65	274	96	99	177	316	291	135	260	232	2671		

Fractie (aantallen) per gebiedstype meetronden 1 t/m 3 (voor invoering 16 nieuwe fracties)													Tabel 2 van 2						
Hoofdcategorie	Verpakking	Niet verpakking	Subcategorie	Kernwinkergebied	Buurtwinkergebied I	Buurtwinkergebied II	Woonwijk I	Woonwijk II	Woonwijk III	Bedrijventerrein	Waterrecreatiegebied	Recreatiegebied (niet zijnde waterrecreatie)	Herreca en uitgaanscentra	Openbaar vervoer gebied	Verzorgingsgebieden	Onderwijsinstelling en omgeving	Onsluitingsweg	Evenement- en sportcomplex en omgeving	Totaal
<b>Materialen en overige verpakkingen</b>																			
Kunststoffen (niet eet/drinkverpakkingen en overige kunststof)	X		kunststoffen verpakkingen	346	479	183	317	273	145	842	234	159	322	476	619	293	392	451	5531
		X	kunststoffen niet-verpakkingen	543	869	534	724	630	474	1526	457	293	725	844	850	542	814	773	10598
Papier		X	zakdoek	241	342	155	234	163	95	261	234	212	249	370	789	190	248	218	4001
		X	bonnetjes	351	563	210	111	131	20	127	47	27	259	347	171	74	101	112	2651
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<b>Totaal meetronden 1 t/m 3</b>				<b>11465</b>	<b>13480</b>	<b>7096</b>	<b>7940</b>	<b>7084</b>	<b>4025</b>	<b>11760</b>	<b>6373</b>	<b>4564</b>	<b>12975</b>	<b>17659</b>	<b>19121</b>	<b>7534</b>	<b>9709</b>	<b>11330</b>	<b>152115</b>

### Entry assignment 3

Examine the table above (a larger version can be found in the appendix) from the 2020 annual report on litter. You can imagine that you can draw many conclusions about different numbers, types, locations or quantities of litter, based on this table. Draw one conclusion based on (part of) the data from this table and make a suitable graph or diagram. Explain why you have chosen this data and this representation.

### Part 2: collecting data at school, and around the school

Watch the video of the *Zwerfinator*.

Dirk Groot, the *Zwerfinator*, has been able to contribute to a cleaner Purmerend by mapping out litter in Purmerend.

In this part of the assignment you will investigate for yourself what can be improved in terms of waste in and around your school.

Think about what you want to investigate with your group. Think about what problems there might be and what could be improved. For example, consider the waste policy at school, how much household and litter the school produces, what types of waste bins there are and how big they are, whether there is litter in and around the school or whether it causes nuisance.

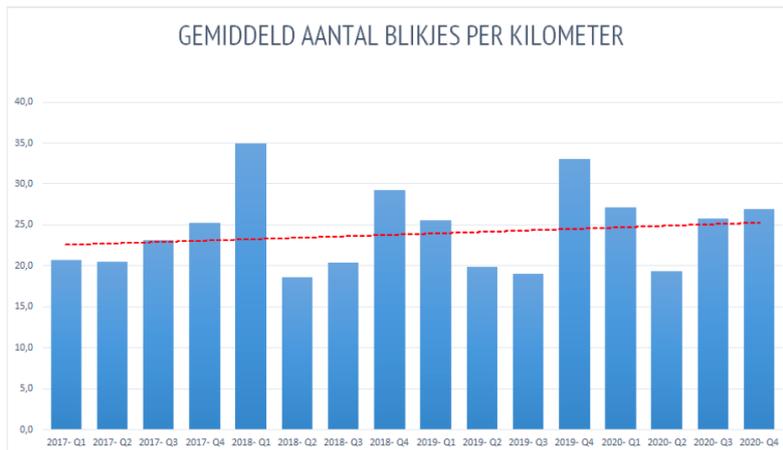
Make a research plan with a researchable question (what will you research) and the approach (how will you research it, what data will you collect?)

Also consider how you can conduct the research: which methods suit your question? Are you going to take pictures? Count? Categorize? Measure and weigh? Interview people about waste (policy) and waste campaigns?

Submit your research plan to the teacher for approval. Then do the research, by collecting the data. You include the approved plan as an appendix in the final product.

### Part 3: processing data (end product)

The *Zwerfinator* uses graphs to map out the waste. You can see one of those graphs below. The title of the graph is: AVERAGE NUMBER OF CANS PER KILOMETER



This is one of the many ways you can display data. You've also seen a number of ways in Part 1, and there are many more, of course.

You yourself have collected all kinds of data about waste in and around the school. Based on this, prepare your advice for the school, in which you show how the school can better deal with waste.

Your advice includes at least:

- A description of the current situation. Use the data that you have collected in and around the school (part 2) and information about the national situation (part 1). Make sure you present the data attractively in tables, graphs, infographics or diagrams.
- A plan for the school to deal with waste better: What can be improved? How can the school deal with that? Who does what? What is the result then?

The form in which you give the advice is free: it may be a poster, a film, a presentation, a report, or something else. As long as it is clear what the advice is and what it is based on.

APPENDIX TABLE ENTRY ASSIGNMENT 3 (in Dutch)

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<b>Totalen meetronden 1 t/m 3</b>				<b>11465</b>	<b>13480</b>	<b>7096</b>	<b>7940</b>	<b>7084</b>	<b>4025</b>	<b>11760</b>	<b>6373</b>	<b>4564</b>	<b>12975</b>	<b>17659</b>	<b>19121</b>	<b>7534</b>	<b>9709</b>	<b>11330</b>	<b>152115</b>