

Progetto

**Anche il cestino di classe può
salire in cattedra**

Liceo Scientifico A. ORIANI - RAVENNA

4^aA s.a., 5^aG

OBIETTIVI DEL PROGETTO

Il progetto si propone di:

- responsabilizzare gli studenti sulla problematica dei rifiuti e dell'inquinamento ad essi correlato
- contribuire alla costruzione di una cittadinanza attiva
- mettere a confronto realtà europee

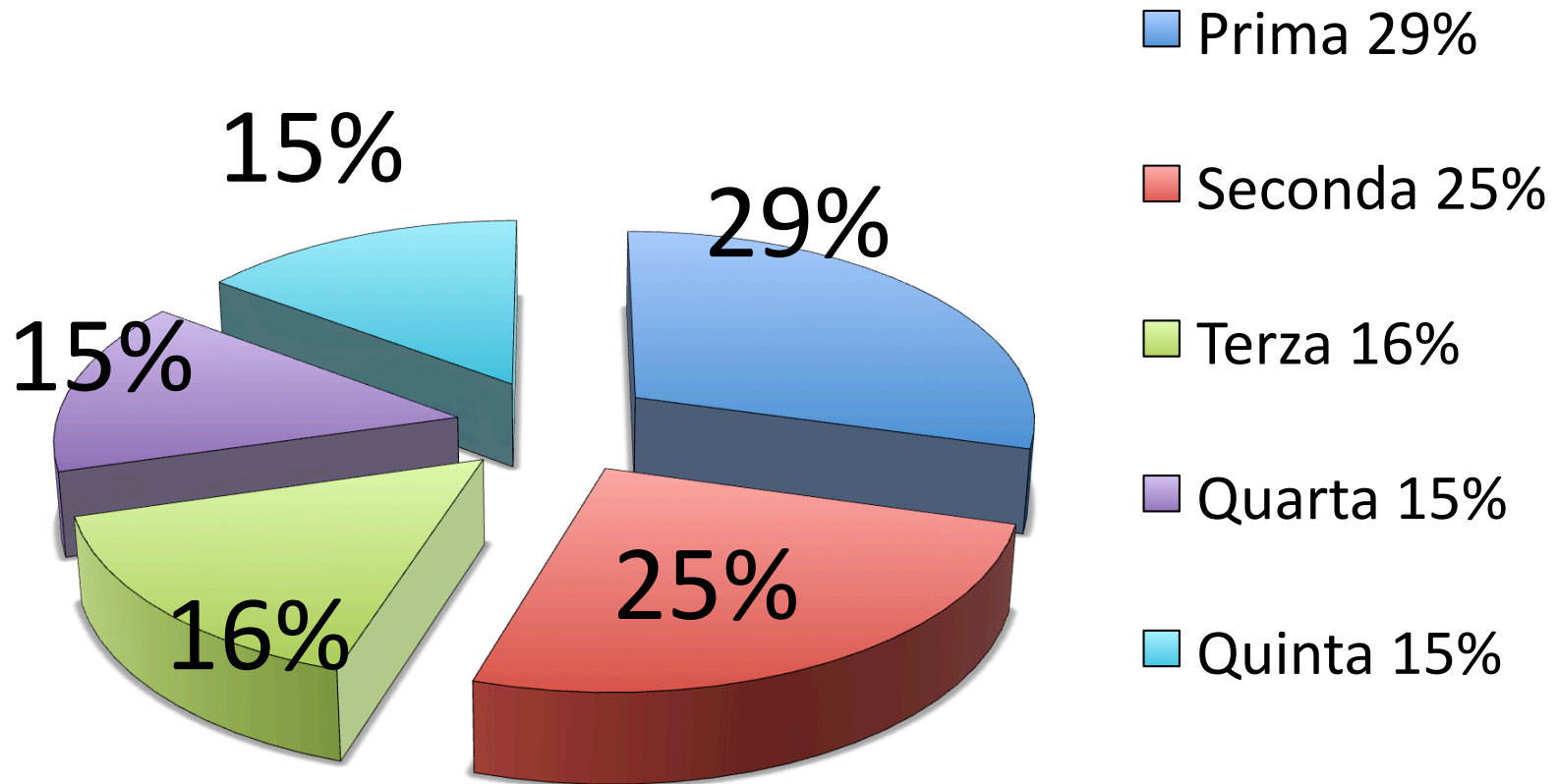
COME NASCE IL PROGETTO

- un cestino di classe stracolmo di rifiuti ci fa capire che per migliorare l'ambiente dobbiamo partire dai nostri comportamenti individuali
- in campo ambientale le buone pratiche contano di più delle buone politiche (e le due cose sono strettamente collegate)
- decidiamo di occuparcene, e prepariamo un questionario da sottoporre ai nostri compagni

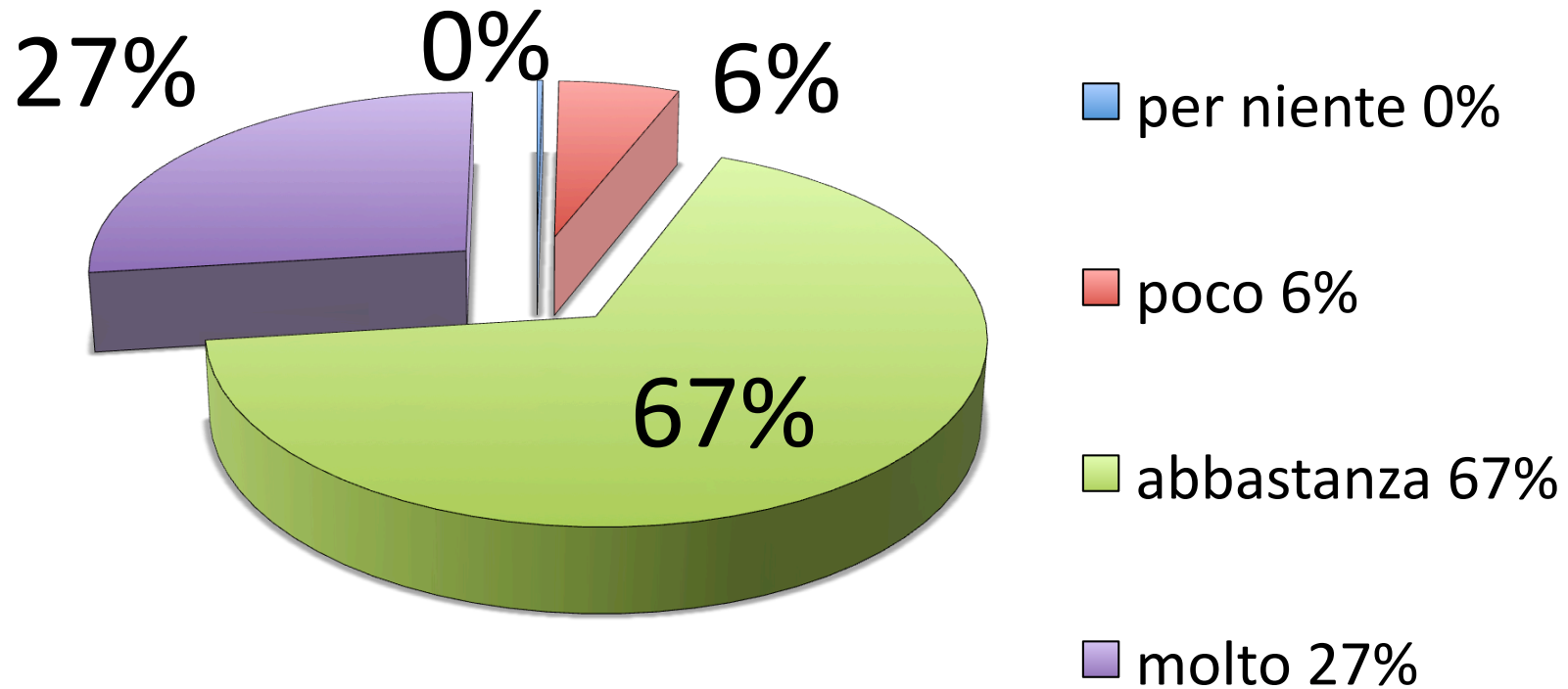
IL QUESTIONARIO

- è stato somministrato all'intero istituto: 38 classi, più di 700 studenti
- proponeva 9 semplici domande a scelta multipla ...
- ... e alla fine chiedeva agli studenti di esprimere pareri, suggerimenti, proposte

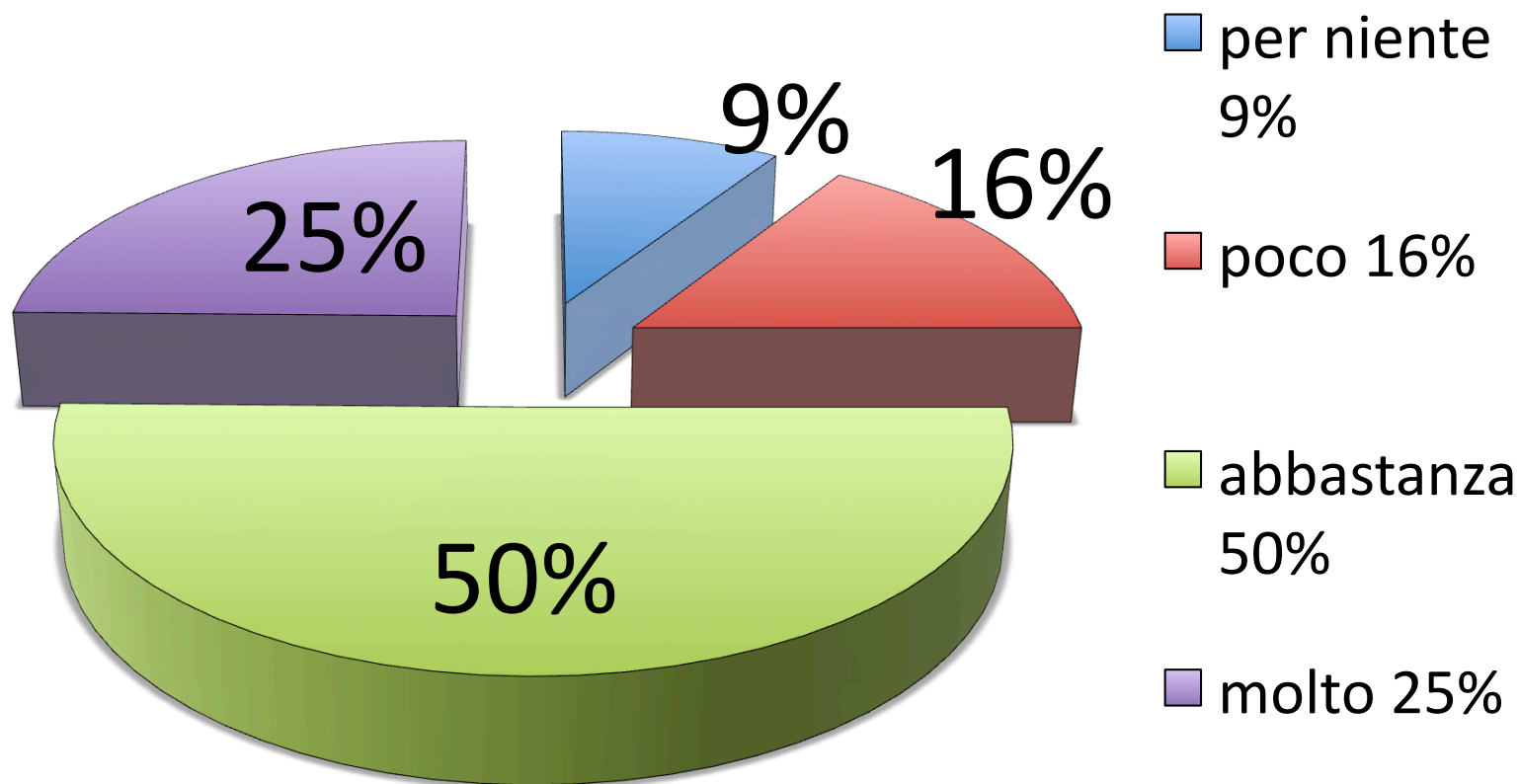
CLASSE



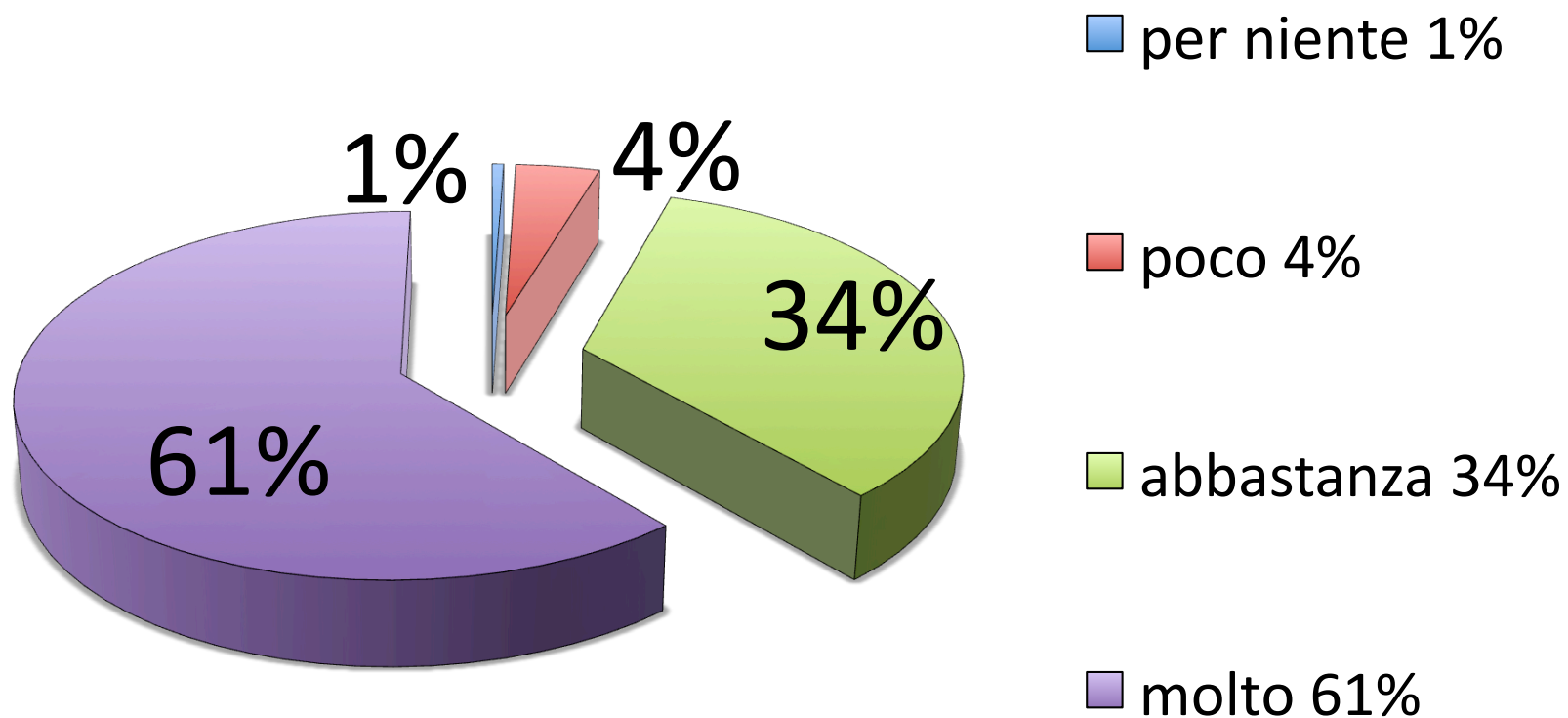
Conosci la raccolta differenziata?



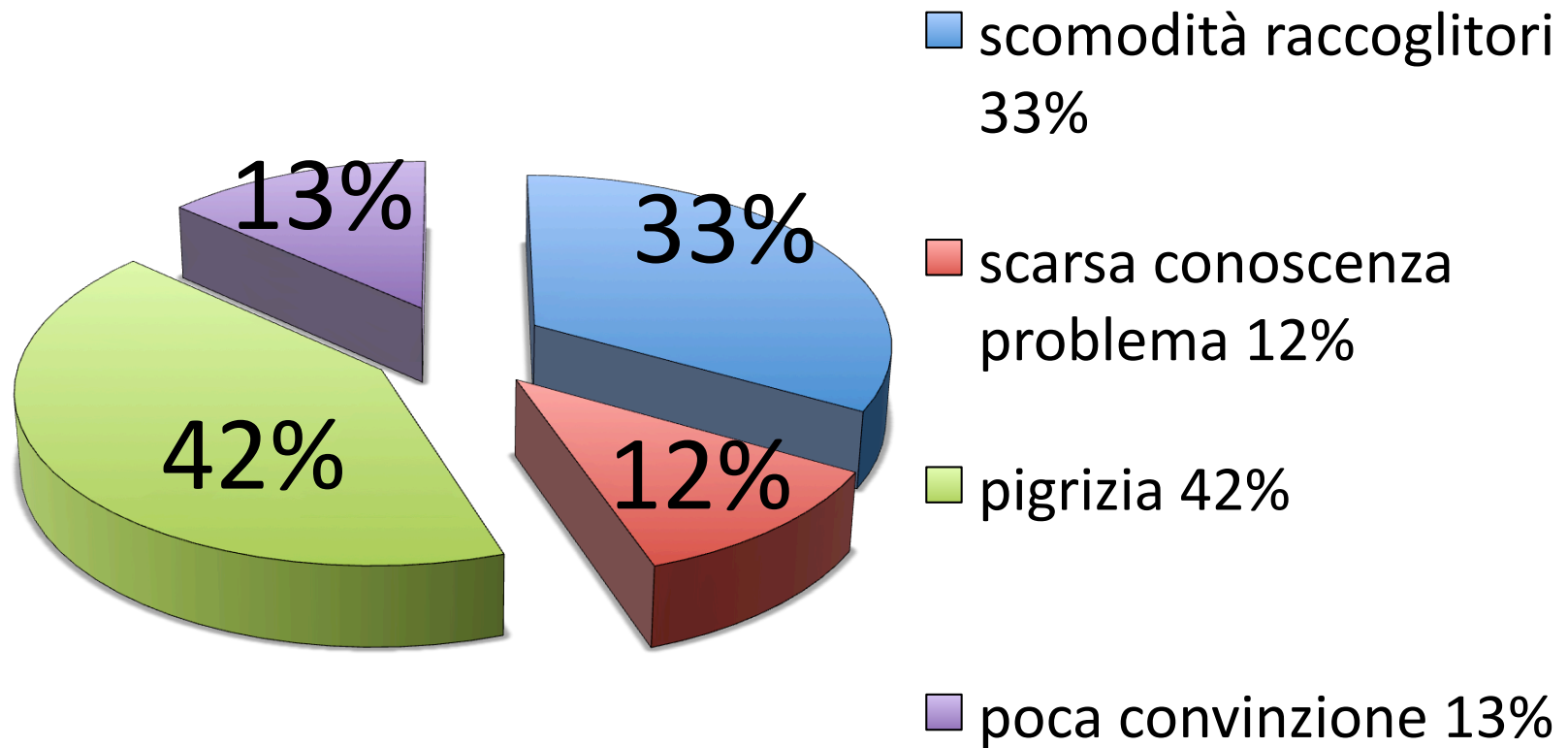
Nella tua famiglia si pratica la raccolta differenziata?



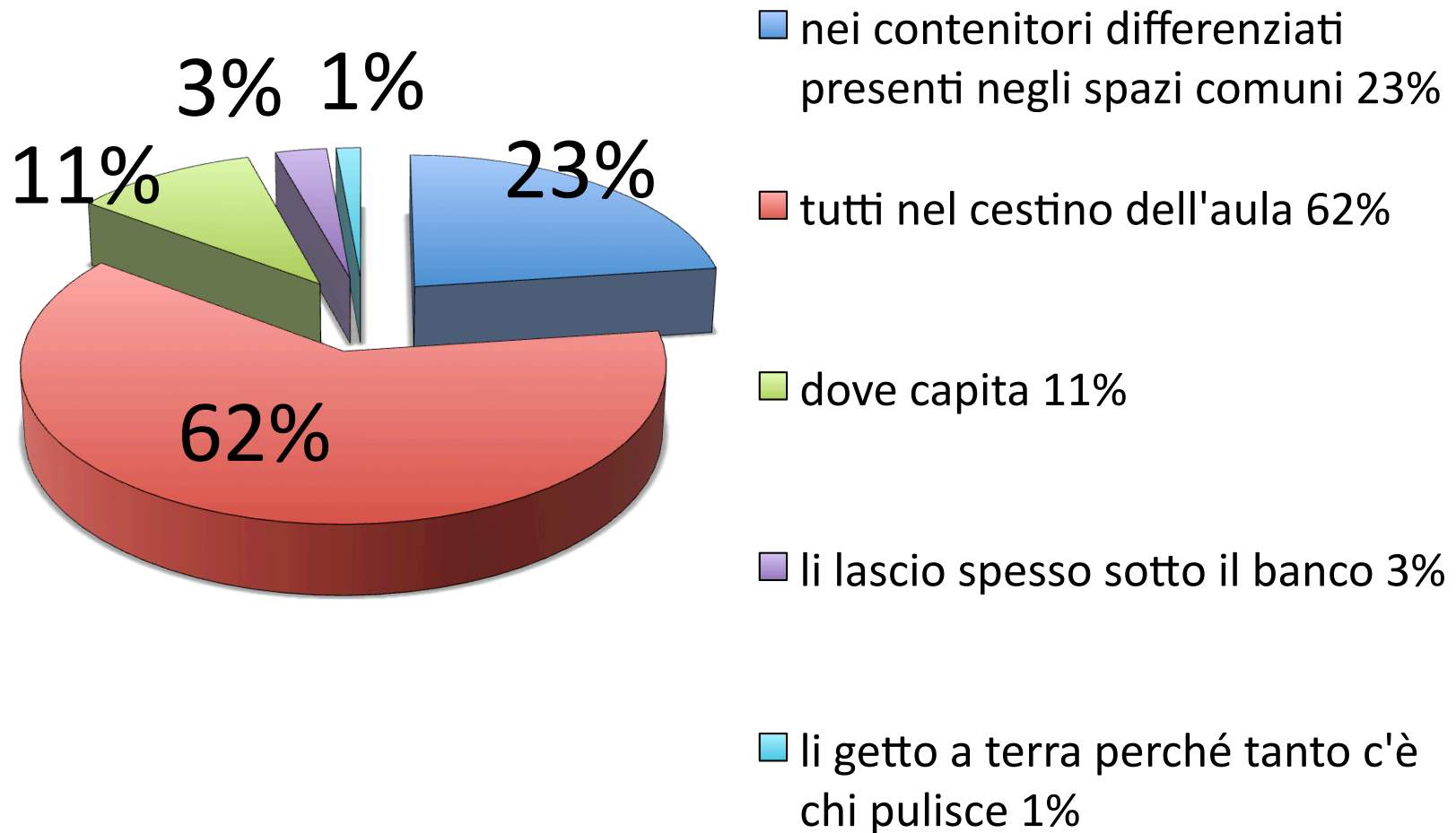
Quanto è importante la raccolta differenziata?



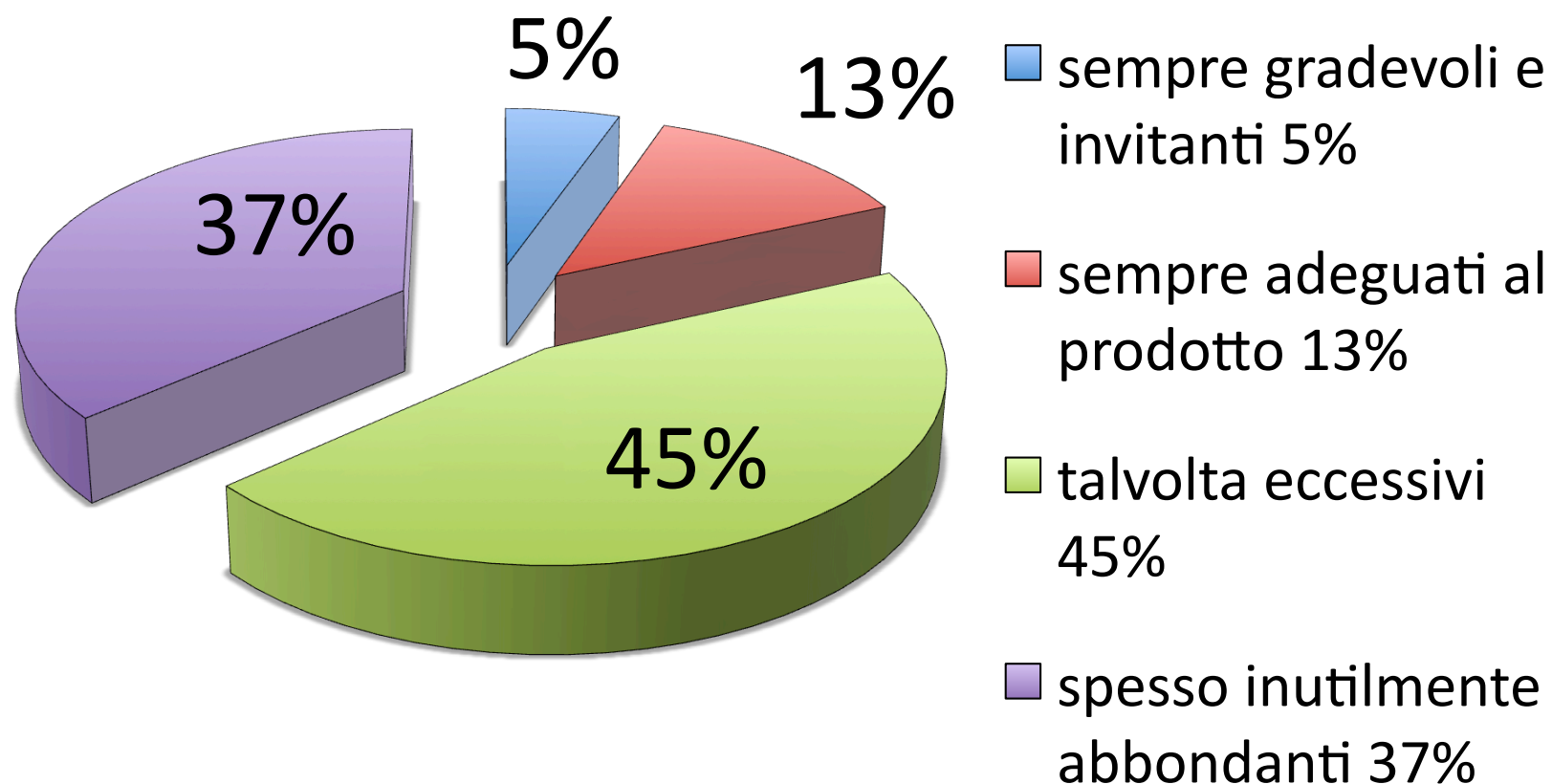
Se la tua famiglia non effettua la raccolta differenziata qual è il motivo?



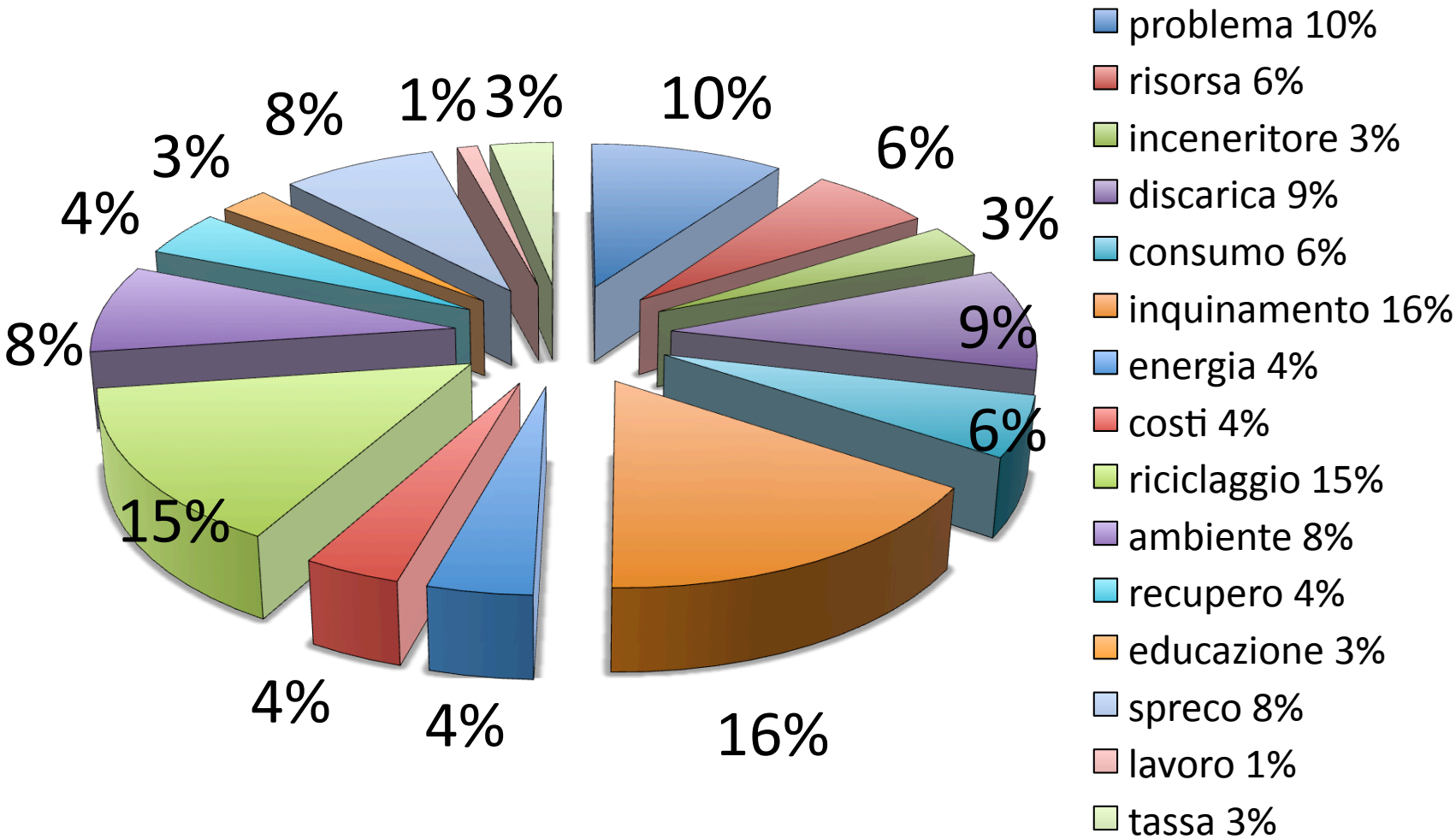
A scuola metti i tuoi rifiuti



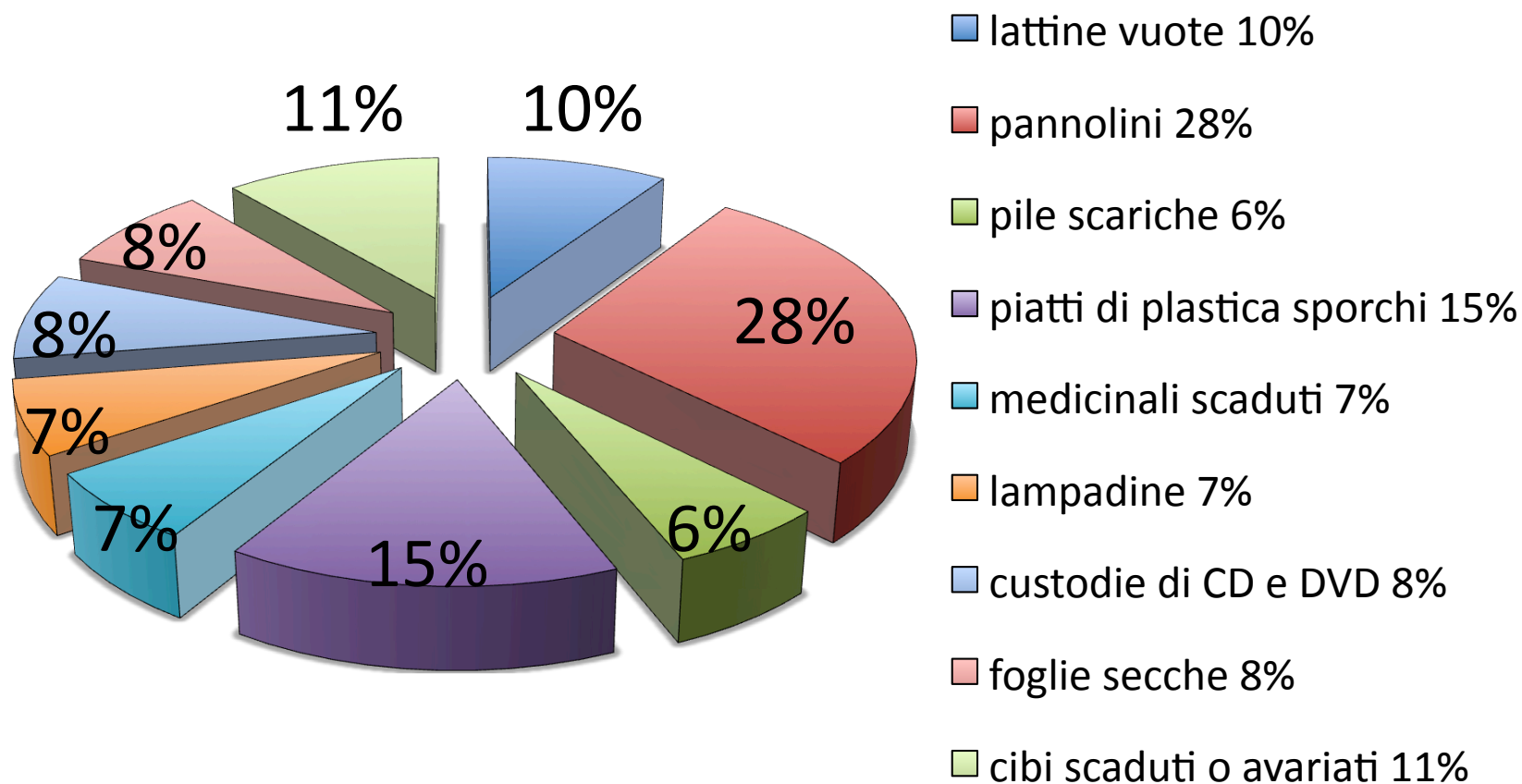
Gli imballaggi e le confezioni dei vari prodotti sono



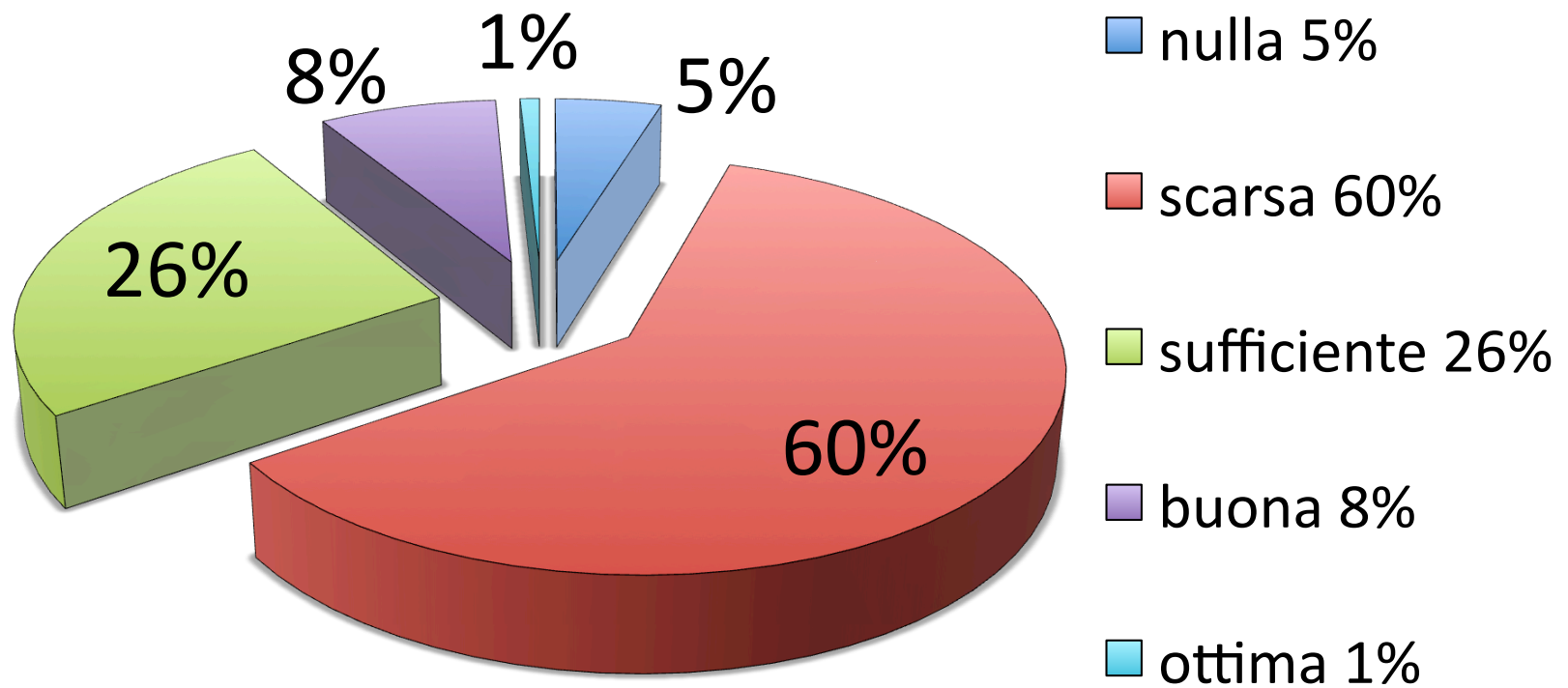
Quale parola associ al termine rifiuti?



Quali di questi oggetti metteresti nel cassonetto della raccolta indifferenziata?



Pensi che l'informazione fornita ai cittadini sul problema dei rifiuti e sulla raccolta differenziata sia



alcune frasi riportate dagli studenti

- fare una lezione sul riciclo in ogni classe
- ridurre gli imballaggi al minimo
- contenitori per la differenziata in tutte le classi
- più sensibilizzazione ai cittadini, fin da piccoli
- utilizzare i rifiuti per realizzare cose utili
- la differenziata non è abbastanza incentivata
- più siamo, più cambieremo il nostro futuro

cosa faremo nei prossimi mesi

- formazione gruppi di lavoro su alcune tematiche
- preparazione conferenze per classi del liceo
- preparazione e-book e lezioni per il sito della scuola
- contatti con scuole di altri paesi anche all'estero
- contatti con strutture locali (Hera, Università)
- contatti associazioni ambientaliste e cooperative

alcuni spunti su cui vorremmo lavorare

- studio sui vari tipi di sostanze plastiche
- obsolescenza programmata e recupero apparecchiature elettroniche
- plastica (e microparticelle) nel mare ... o nel nostro piatto?
- è possibile una 'strategia a rifiuti zero'?
- e se fosse proprio l'Italia il paese all'avanguardia nelle strategie 'rifiuti zero'?

TEXT BOX 2.11

WASTE MANAGEMENT CRISIS IN NAPLES, ITALY, AND ITS SOLUTION



Since the mid-1990s, Naples and the Campania region in Italy have suffered from dumping of MSW into overfilled landfills. In late 2007, when municipal workers refused to pick up any further material, the waste began to appear on the streets of Naples. After two months the government closed one of two major dumps near the city at the request of the city's residents.

Reports during the summer of 2008 stated that the problem was caused at least in part by the Camorra, a powerful local mafia based in Campania, who had created a lucrative business in the municipal waste disposal business. Heavy metals, industrial waste, and chemicals and household waste were frequently mixed together, dumped near roads and burnt to avoid detec-

plans. When some municipalities and civil society groups objected to the incinerators, civil society groups, academia, and municipalities took up instead a zero waste strategy.

In December 2010, the first Zero Waste Research Centre in Europe was established in Capannori, Italy. In October 2011, the Centre hosted the first International Zero Waste meeting for municipalities with participation by more than 50 Italian municipalities and representatives from the US city of San Francisco, Sweden, Wales, Catalonia and the Basque Country, Spain.⁴⁰ By November 2012, 114 Italian municipalities had adopted and begun to implement a Zero Waste Strategy.⁴¹

Nei mari galleggiano milioni di rifiuti di plastica, ma secondo gli esperti dovrebbero essere di più. Che fine hanno fatto?

di Laura Parker



PLASTICS BREAKDOWN

WE USE TONS OF PLASTIC. IT'S IN EVERYTHING FROM PACKAGING TO TOYS, TO THE DASHBOARD IN YOUR CAR. MASSIVE AMOUNTS OF IT END UP IN THE OCEAN. IT CONTAINS TOXINS, AND ABSORBS MORE TOXINS. IT ENTANGLES AND KILLS SEA LIFE. IT CERTAINLY DOESN'T BIODEGRADE. BUT THERE ARE WAYS WE CAN HELP.

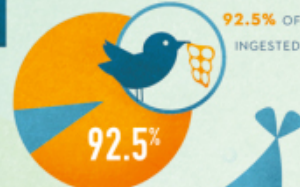


BAD FOR THE OCEAN. BAD FOR US



54%

OF THE 120 MARINE MAMMAL SPECIES ON THE THREATENED LIST HAVE BEEN OBSERVED ENTANGLED IN OR INGESTING PLASTIC.



92.5% OF DEAD SEABIRDS (NORTHERN FULMARS) IN A STUDY HAD INGESTED PLASTIC IN AMOUNTS EQUAL TO 5% OF THEIR BODY WEIGHT.

AMERICANS USE ROUGHLY 100 BILLION PLASTIC BAGS PER YEAR. PLASTIC BAGS CAN TAKE 400 TO 1,000 YEARS TO DECOMPOSE, BUT THEIR

CHEMICAL RESIDUES REMAIN FOR YEARS AFTER.

CHEMICALS USED IN PLASTICS LIKE PHTHALATES AND FLAME RETARDANTS HAVE BEEN FOUND IN FISH, MOLLUSKS, SEA MAMMALS, AND OTHER SEA LIFE

HOW BIG IS THE PROBLEM?

73.9 MILLION POUNDS OF PLASTIC ARE SPREAD THROUGHOUT THE WORLD'S GYRES.

IT'S EXPENSIVE TOO...

AS OF 2009, SOUTHERN CALIFORNIA CITIES HAD SPENT OVER \$1.7 BILLION TO KEEP WATERWAYS FROM BEING OVER LEGAL TRASH LIMITS.

HOW MUCH PLASTIC ENDS UP IN THE OCEAN?



CIRCULAR CURRENTS (GYRES) THOUSANDS OF MILES ACROSS COLLECT IMMENSE AMOUNTS OF PLASTIC IN ALL OF THE WORLD'S OCEANS.

MICROPLASTIC CONCENTRATIONS IN THE NORTH PACIFIC GYRE INCREASED 100X IN THE PAST 40 YEARS.

CURRENTS CARRY THE PLASTIC EVERYWHERE.

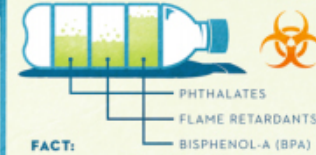
RUBBER DUCKS LOST FROM A SHIPPING CONTAINER IN THE NORTH PACIFIC WERE FOUND NEAR SCOTLAND. IN THE NORTH ATLANTIC, TSUNAMI DEBRIS FROM JAPAN ARRIVED IN NORTH AMERICA. AFTER CROSSING THE LARGEST OCEAN ON EARTH IN JUST 10 MONTHS.

PLASTIC IS MADE OF TOXINS

331 MILLION BARRELS OF PETROLEUM & NATURAL GAS LIQUIDS

WERE USED TO MAKE U.S. PLASTIC PRODUCTS. EQUAL TO ABOUT 5% OF THE NATIONAL PETROLEUM CONSUMPTION.

PLASTICS CONTAIN TOXIC CHEMICALS



FACT:



MORE TOXINS ADHERE AS PLASTIC BREAKS DOWN

IN PLASTIC FROM THE NORTH PACIFIC GYRE:



40% CONTAINED PESTICIDES LIKE DDT. 50% CONTAINED PCBs (BANNED BY U.S. CONGRESS IN 1979, FOR HAVING VARIOUS NEUROTOXIC EFFECTS). 80% CONTAINED PAHs (MAY BE HIGHLY CARCINOGENIC).

FLOATING TOXIC MICROPLASTICS ARE OFTEN INGESTED BY MARINE LIFE, WHICH IN TURN IS CONSUMED BY US.

WHAT CAN WE DO TO HELP?

USE LESS PLASTIC

8 OF THE TOP 10 ITEMS FOUND ON BEACHES DURING LAST YEAR'S INTERNATIONAL COASTAL CLEAN UP DAY WERE PLASTICS RELATED TO EATING & DRINKING.

- PLASTIC BAGS > REUSABLE BAGS, NO BAG
- STRAWS > NO NEED
- UTENSILS > USE NON-PLASTIC
- TO GO CUPS > REUSABLE MUGS & CUPS
- ELECTRONICS > REPAIR OR UPGRADE, RECYCLE THE OLD ITEM WHEN YOU NEED SOMETHING NEW
- BOTTLED WATER > REUSABLE WATER BOTTLE
- PACKAGING > BUY ITEMS WITH MINIMAL PACKAGING
- CLOTHING > BUY NATURAL MATERIALS. SYNTHETIC FIBERS END UP IN THE OCEAN

RESEARCH PROVIDED BY OCEAN CONSERVANCY, 5 GYRES, AND OTHERS. INFOGRAPHIC BY WWW.ABRARANTHINKIN.COM FOR ONE WORLD ONE OCEAN | 2012

Plastic debris in the open ocean

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There is a rising concern regarding the accumulation of floating plastic debris in the open ocean. However, the magnitude and the fate of this pollution are still open questions. Using data from the Malaspina 2010 circumnavigation, regional surveys, and previously published reports, we show a worldwide distribution of plastic on the surface of the open ocean, mostly accumulating in the convergence zones of each of the five subtropical gyres with comparable density. However, the global load of plastic on the open ocean surface was estimated to be on the order of tens of thousands of tons, far less than expected. Our observations of the size distribution of floating plastic debris point at important size-selective sinks removing millimeter-sized fragments of floating plastic on a large scale. This sink may involve a combination of fast nano-fragmentation of the microplastic into particles of microns or smaller, their transference to the ocean interior by food webs and ballasting processes, and processes yet to be discovered. Resolving the fate of the missing plastic debris is of fundamental importance to determine the nature and significance of the impacts of plastic pollution in the ocean.

acquired from seawater through sorption processes [e.g., hydrophobic chemicals (14, 15)]. Recent studies provide evidence that these contaminants can accumulate in the receiving organisms during digestion (14).

Our awareness of the significance of plastic pollution in the ocean is relatively recent, and basic questions remain unresolved. Indeed, the quantity of plastic floating in the ocean and its final destination are still unknown (16). Historical time series of surface plastic concentration in fixed ocean regions show no significant increasing trend since the 1980s, despite an increase in production and disposal (3, 16, 17). These studies suggest that surface waters are not the final destination for buoyant plastic debris in the ocean. Nano-fragmentation, predation, biofouling, or shore deposition have been proposed as possible mechanisms of removal from the surface (3, 9, 16).

On the basis of samples collected on a circumnavigation cruise (Malaspina 2010 expedition), on five regional cruises, and available data from recent studies (3–5, 17–19), we aim to provide a

ormai sembra sicuro: la plastica che
'manca' ce la mangiamo col cibo





grazie per l'attenzione