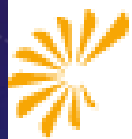


«NON SOLO SCIENZA ...»
Idee, suggerimenti, proposte concrete per
la didattica laboratoriale

Iniziativa didattica promossa in collaborazione con la cooperativa “Il Calabrone”



il calabrone



1	9	8	1
2	0	2	1

Prof. ANDREOLETTI
FEDERICO

BRESCIA

ATTIVITÀ STEM: alcune parole chiave

Competenze

Comprensione leggi e
concetti

Conoscenze

Team working

Situazioni connesse
con la realtà

Problem solving

ATTIVITÀ STEM : NUOVE parole chiave

Abilità manuali

Multidisciplinarietà

Materiali low-cost

Gaming

Arte (STEAM)

Coding e pensiero
computazionale

ALCUNE IDEE PER ORIENTARSI ...

A - Livelli diversi di
approccio alle STEM

B - Risorse in rete

- Siti web
- concorsi

C – Esempi

- Botanica
- Space

Contatti

A - Livelli diversi di approccio alle STEM

Top Level

- Partire dagli studenti/genitori
- Brainstorming e selezione idee
- Progettazione, realizzazione, sviluppo, ...
- Esempi: [«ikarus»](#), [«Manuka honey»](#)

A - Livelli diversi di approccio alle STEM


Real level

- Proposta di esperimenti già confezionati e disponibili (on line, testi, ...)
- Proposta di un tema e gli studenti autonomamente ricercano, sperimentano, presentano
- Concorsi e progetti – più che la competizione, è la condivisione che ingaggia gli studenti

B – Risorse di rete

Risorse di rete

- SPACEDREAM 2023 ([link](#))



MANIFESTAZIONE 2023 CTNA CONTATTI EDIZIONE 2022 EDIZIONE 2021
SPACE TRAINING & COACHING - GUARDA LO SLIDESHOW ACCEDI

Space Dream

Parti con CTNA alla scoperta dello spazio

Torna **Space Dream** e si parte per un nuovo viaggio alla scoperta dei Pianeti per arrivare fino alla Luna e oltre!

Si tratta di un'avventura straordinaria con partenza dal banco di scuola per esplorare lo spazio con il proprio equipaggio, composto dai compagni di classe!

Studenti e studentesse dovranno progettare moduli abitativi, costruire rover e immaginare la vita sul suolo lunare.

Per affrontare ciascuna missione sarà necessario prepararsi studiando le risorse didattiche messe a disposizione e facendo approfondimenti con i propri docenti e, una volta pronti, si avrà l'occasione di vivere una vera e propria esperienza spaziale!

- ✿ L'iniziativa, organizzata e promossa dal Cluster Tecnologico Nazionale Aerospazio si rivolge agli studenti delle scuole primarie e alle scuole secondarie di primo e secondo grado. Per la prima volta, la partecipazione viene estesa anche alle Associazioni riconosciute e che, da Statuto, sono impegnate nel sostegno dei ragazzi nello studio.
- ✿ Altra novità dell'edizione 2023 è l'introduzione del "tema conduttore" **della luce e dell'utilizzo**

B – Risorse di rete

Risorse di rete

- ESA ([link](#))

The screenshot shows the ESA website header with the logo and navigation menu. Below the header, a banner titled 'BACK TO SCHOOL! 2022-2023 WITH ESA' features a timeline of school projects. The timeline includes the following projects and dates:

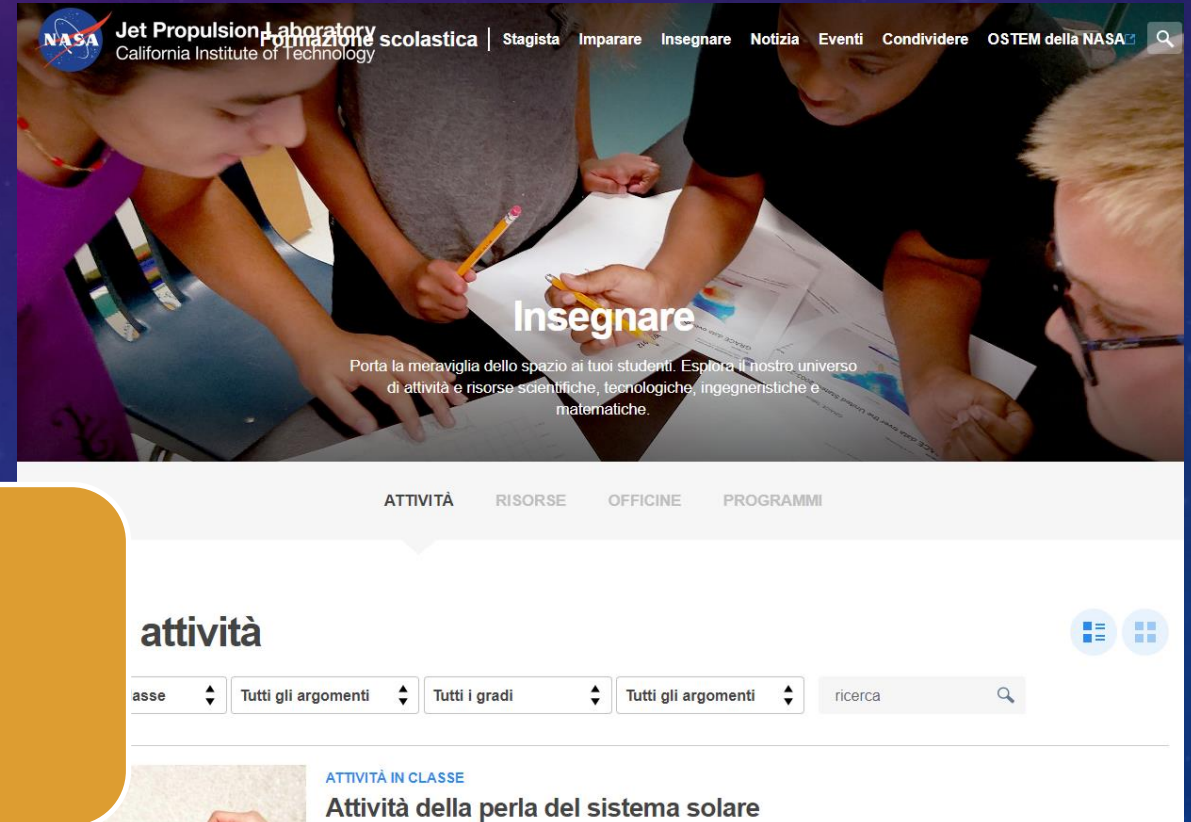
Project Name	Date
MISSION X	12 SEPT
ASTRO PI	13 SEPT
CANSAT	14 SEPT
MOON CAMP	15 SEPT
CLIMATE DETECTIVES	16 SEPT

Below the timeline, the text 'AGENZIA' is visible, followed by the large heading '2022-23 Progetti Scuola'.

B – Risorse di rete

Risorse di rete

- NASA JPL ([link](#))



B – Risorse di rete

Risorse di rete

- Explorify ([link](#))

The screenshot shows the Explorify website. At the top, there's a navigation bar with links: Home, My dashboard, What's new?, Teacher support, and a user profile for Federico. Below this is a search bar with filters for Year group (all), Science topic (all), and Activity type (all), followed by a search button labeled 'Search 500+ activities'. The main heading says 'Pick one of these low-prep activities to do next.' with a subtext 'Choose your science topics for more relevant recommendations. [Set topics](#)'. There are three activity cards: 1. 'FUEL UP' with an image of granola, titled 'ODD ONE OUT', for 'All year groups' and 'Animals, including humans'. 2. 'To flee or not to flee' with an image of meerkats, titled 'WHAT'S GOING ON?', for 'All year groups' and 'Animals, including humans • Living...'. 3. 'Tiny teeth' with an image of animal paws, titled 'ZOOM IN, ZOOM OUT', for 'All year groups' and 'Animals, including humans • Living...'. A 'Browse all activities' button is below these cards. Further down, a section for 'British Science Week 2023' with a 'See more >' link is shown, with the text 'Explore the theme of 'Connections' with these tailored Explorify activities'. Below this are four more activity cards: 1. 'To flee or not to flee' (meerkats), 2. 'On thin ice' (polar bear), 3. 'Does colour affect how we taste things?' (strawberries), and 4. 'Bottoms up' (beetle).

Explorify Home My dashboard What's new? Teacher support Federico ▾

Year group (all) ▾ Science topic (all) ▾ Activity type (all) ▾ Search 500+ activities 🔍

Pick one of these low-prep activities to do next.
Choose your science topics for more relevant recommendations. [Set topics](#)

FUEL UP
All year groups
Animals, including humans

To flee or not to flee
All year groups
Animals, including humans • Living...

Tiny teeth
All year groups
Animals, including humans • Living...

[Browse all activities](#)

British Science Week 2023 [See more >](#)
Explore the theme of 'Connections' with these tailored Explorify activities

To flee or not to flee
All year groups
Animals, including humans • Living...

On thin ice
All year groups
Animals, including humans • Living...

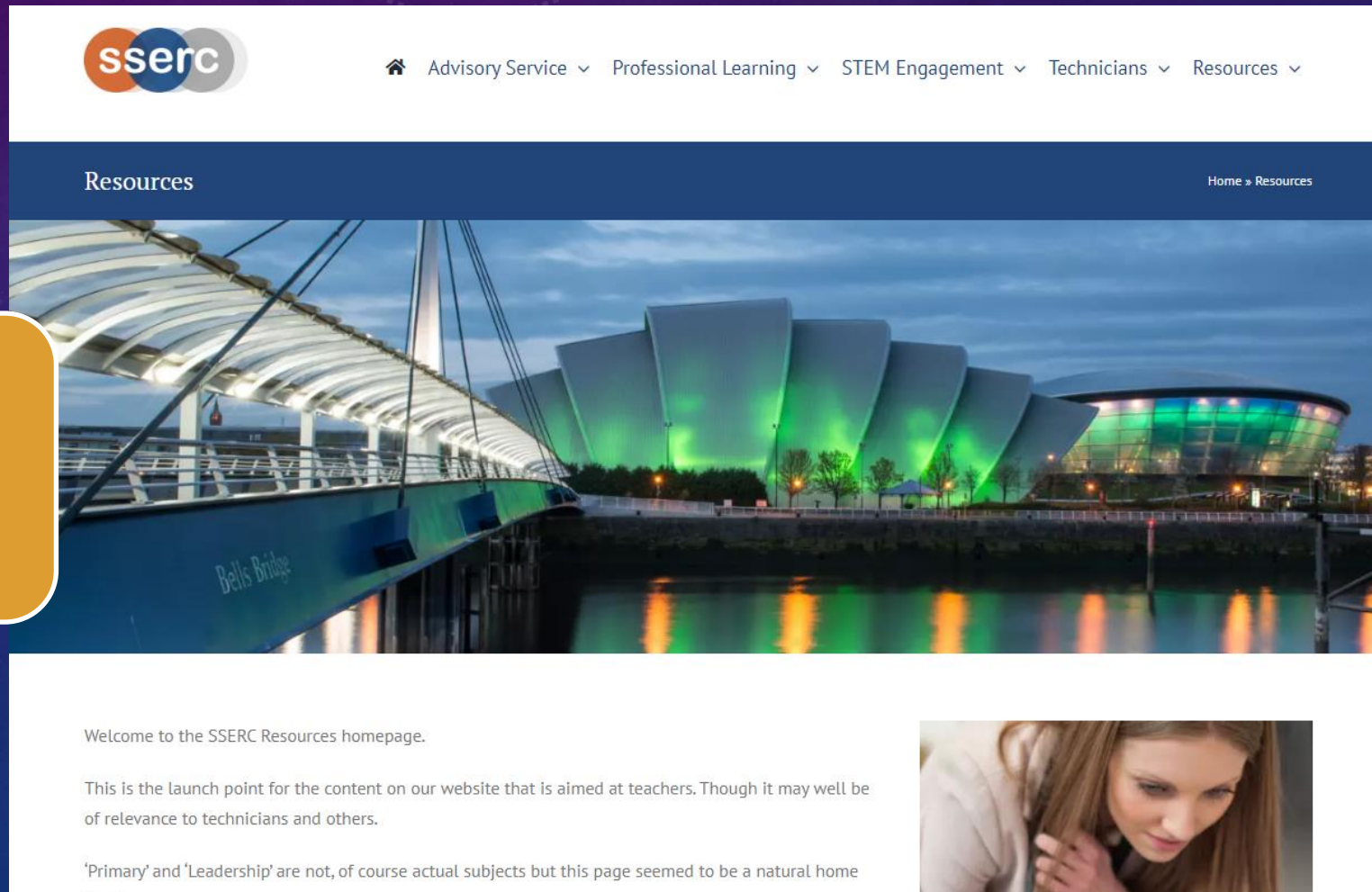
Does colour affect how we taste things?
All year groups
Animals, including humans • Living...

Bottoms up
All year groups
Animals, including humans • Living...

B – Risorse di rete

Risorse di rete

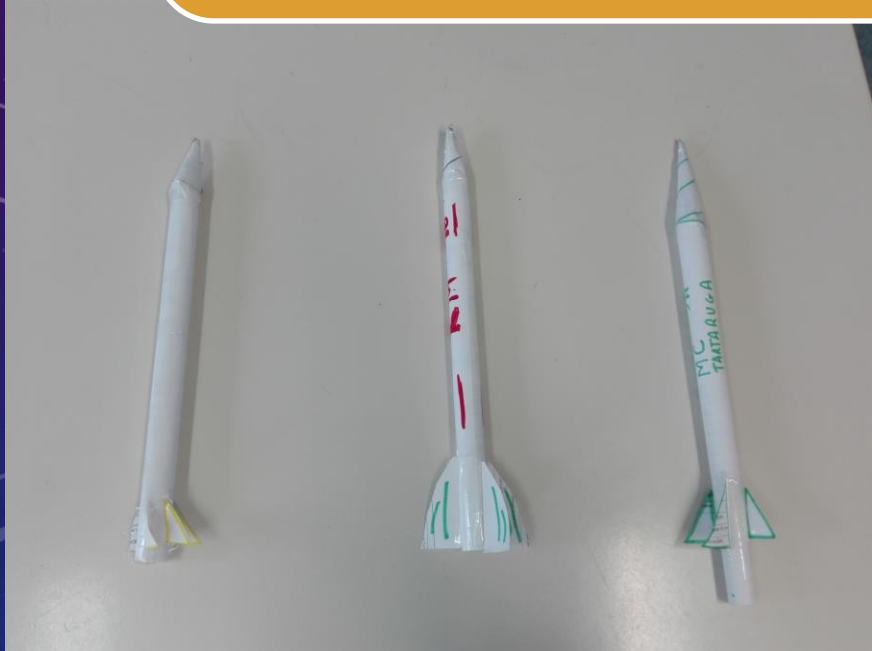
- SSERC ([link](#))



C – Esempi

Esa paper rocket

- From ESA ([link](#))



physics | P17

esa

teach with space

→ 3...2...1 LIFT-OFF!
Building your own paper rocket



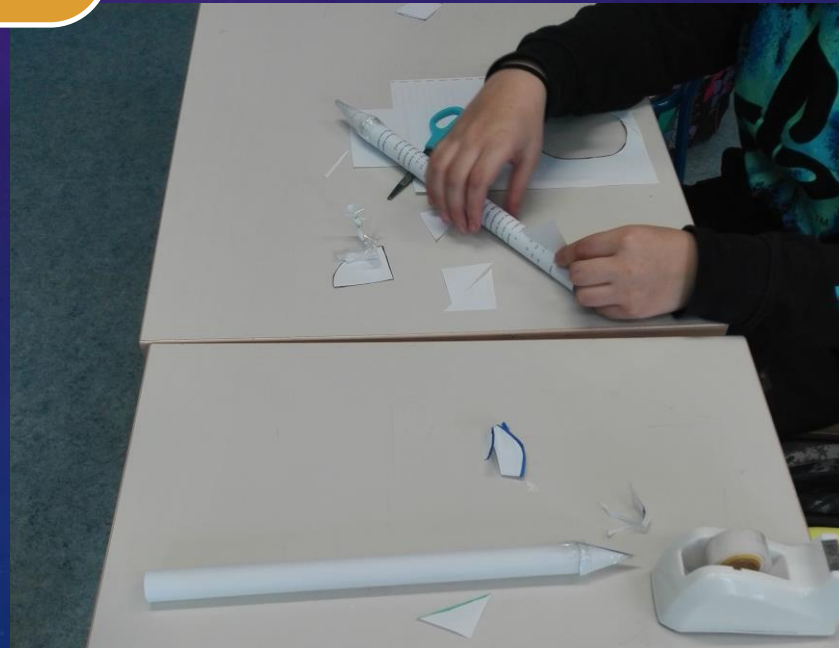
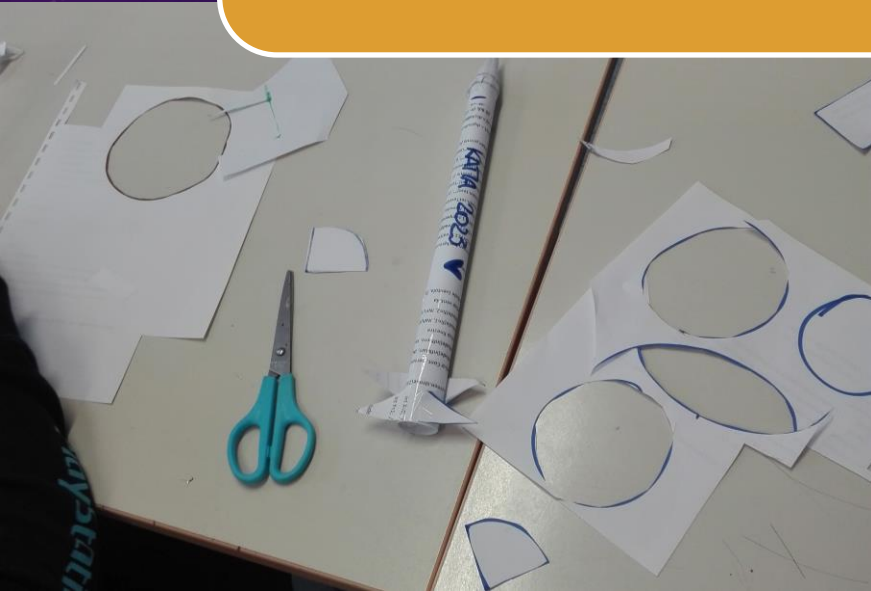
teacher guide & student worksheet

European Space Agency

C – Esempi

Esa paper rocket

- From ESA ([link](#))



C – Esempi


Meteoriti

- HST ([link](#))

RESOURCE CENTER | HST

Science Projects ▾ Teaching Resources &

Science Projects > Earth & Space Projects > Collect Meteorites



Collect Meteorites

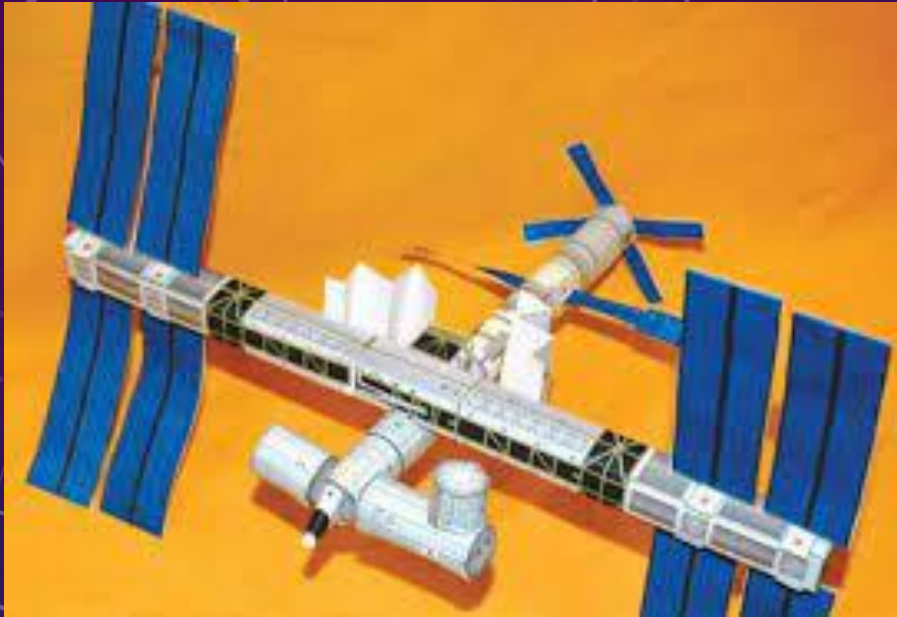
Every day, meteorites fall to the Earth.

Most of these meteorites, however, are very small.

They can easily be mistaken for ordinary dust and small pebbles which is why they're called micrometeorites.

You can collect your own micrometeorites in this project; the video at the end shows you what

C – Esempi



Paper model

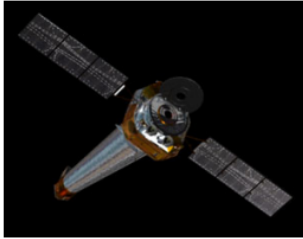
- NASA ([link](#))

NASA SCIENCE
SHARE THE SCIENCE

to start your space fleet (or click on the spacecraft name to find out what the mission is all about)


Science Topics News For Researchers Learners Get Involved Citizen Science About Us Español

Build Your Own Universe Exploration Fleet




[Chandra X-Ray Telescope](#)
This Model is Rated: **Easy**
68 KB PDF, 11 pages - Requires Adobe Reader - Prints on 8 1/2 x 11 paper

The third of the Great Observatories was launched in 1999 into Earth orbit. As one of the most sophisticated x-ray observatories ever built, it observes x-rays from high-energy regions of the Universe.



[Compton Gamma Ray Observatory](#)
This Model is Rated: **Easy**
348 KB PDF, 37 pages - Requires Adobe Reader - Prints on 8 1/2 x 11 paper

The second of the Great Observatories was launched in 1991 into Earth orbit, and safely de-orbited in 2000. The observatory helped astronomers learn about the most powerful celestial bodies and events in the Universe. It observed gamma-ray bursts, and high temperature emissions from black holes.



[Fermi](#)
This Model is Rated: **Easy**
1.9 MB PDF, 7 pages - Requires Adobe Reader - Prints on 8 1/2 x 11 paper

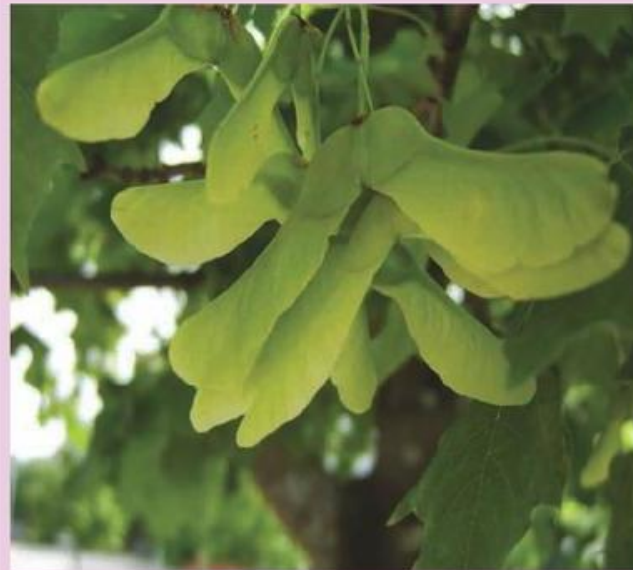
The Fermi Gamma-ray Space Telescope is an international multi-agency mission that launched in 2008. It is studying the cosmos looking at object that emit high energy wavelengths of light.

C – Esempi

Semi di acero

- STEM.org ([link](#))

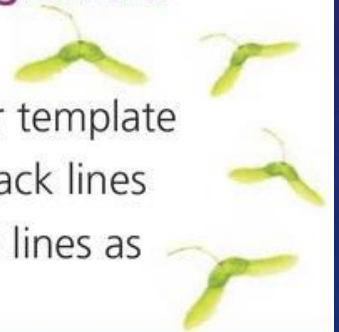
Many species of plants take to the air to **scatter** their seed.



Understanding how seeds spread can be important for growers.

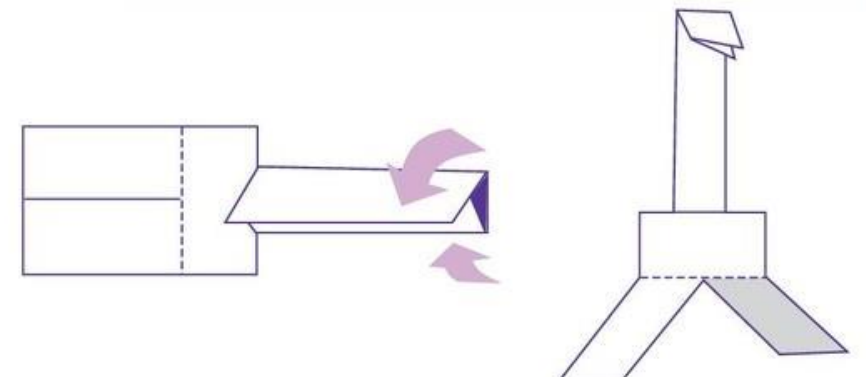
Carefully

- cut out the helicopter template
- cut along the solid black lines
- fold along the dotted lines as shown below.



Helicopter leaves. nlitement Permission is granted to copy, distribute under the terms of the GNU Free Documentation License.

- Test your helicopter ten times each.
- Record the results and calculate the data for the group.



C – Esempi

Foglie d'albero

- Mathsisfun ([link](#))

The next thing you need to decide is how to measure the leaves, and how accurate your measurements should be:

How to measure?

Keeping your leaves flat, use a ruler to measure the length of each leaf from the pointy part at one end of the leaf to the point where the leaf joins the stalk at the other end. Maybe your leaves bend a bit, but don't follow the main rib of the leaf as this would make measurement too difficult.

Just measure in a straight line as shown in the following diagram:



How accurate?

You should measure the length of each leaf to the nearest millimeter.

Now you're ready to begin.

Contatti ...

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