Healthy Soils
For a Healthy Life

Soils Sustain Life
Healthy Soils
For a Healthy Life

What is the International Year of Soils? (IYS)

Why does it matter to me?

What can I do?
Healthy Soils
For a Healthy Life

The 68th United Nations General Assembly has declared 2015 the International Year of Soils (IYS).

FAO of the UN is implementing the IYS 2015 to increase awareness and understanding of the profound importance of soil for human life.
Why care about Healthy Soils?

To keep up with global food demand, the UN estimates, 6 million hectares (14.8 million acres) of new farmland will be needed every year.

The intensification of farming over the past century has increased the rate of soil erosion sixtyfold.

According to the FAO, the world on average has just 60 more years of growing crops.
Why care about Healthy Soils?

• About 1/3 of the earth’s soils are being steadily degraded by largely human-caused factors: erosion, compaction, salinization, nutrient depletion, acidification and pollution.

• Because replacement soils are created at such a slow pace – 2 inches per 1000 years – the amount of arable and productive land per person will in 2050 be only 1/4 that of 1960.

• Nearly 1/4 of all terrestrial species live in soils, a largely forgotten sector in the web of life.

• Climate change: soils typically capture and hold about twice as much carbon by volume as the vegetation growing in them.
Healthy Soils for a Healthy Life

Some of the specific objectives of the IYS 2015 are to:

- Raise full awareness among civil society and decision makers about the profound importance of soil for human life;

- Educate the public about the crucial role soil plays in food security, climate change adaptation and mitigation, essential ecosystem services, poverty alleviation and sustainable development;

- Support effective policies and actions for the sustainable management and protection of soil resources;

- Promote investment in sustainable soil management activities to develop and maintain healthy soils for different land users and population groups;
Healthy soils are the basis for healthy food production.

Soils are the foundation for vegetation which is cultivated or managed for feed, fibre, fuel and medicinal products.

Soils support our planet's biodiversity and they host a quarter of the total.

Soils help to combat and adapt to climate change by playing a key role in the carbon cycle.

Soils store and filter water, improving our resilience to floods and droughts.

Soil is a non-renewable resource; its preservation is essential for food security and our sustainable future.
Soil functions

Soils deliver ecosystem services that enable life on Earth

http://www.fao.org/resources/infographics/
SSSA developed 12 monthly themes that reflect the diverse value of soils to our natural environment and society. Each month has information on the theme, a lesson plan, and other outreach activities.

**January** - Soils Sustain Life

**February** - Soils Support Urban Life

**March** - Soils Support Agriculture

**April** - Soils Clean and Capture Water

**May** - Soils Support Buildings/Infrastructure

**June** - Soils Support Recreation

**July** - Soils are Living

**August** - Soils Support Health

**September** - Soils Protect the Natural Environment

**October** - Soils and the Products We Use

**November** - Soils and Climate

**December** - Soils, Culture, and People
January: Soils Sustain Life - YouTube
<table>
<thead>
<tr>
<th>Educators</th>
<th>Members</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unlocking the Potential of Soil Microbes Activity (PDF)</strong></td>
<td><strong>When Soil Won the Nobel Prize PPTX Presentation</strong></td>
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</tr>
<tr>
<td><strong>Plant Biotech Activity (PDF)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Soil Health Scavenger Hunt (PDF)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Extra Activities</strong></td>
<td><strong>Communications</strong></td>
</tr>
<tr>
<td>(redirects to external website)</td>
<td></td>
</tr>
</tbody>
</table>

**Lots of things live in soils! Get a good view of them by using a Berlese Funnel** (high school)

Read this EARTH Magazine story about antibacterial clays

Citizen Science **Drugs from Dirt** project

Seed Survivor: Growing healthy plants depends on healthy soil! Check out these videos for elementary students.

Little Green Thumbs: Year-round indoor gardening for kids just got easier! Little Green Thumbs gives students and teachers an opportunity to become food producers right in their classrooms!

You are what you drink

**Seeds to Seeds** - Planting and harvesting winter wheat

**News releases**

Soils support health

Blog
Soil Searching

Lesson Description
Students collect and handle samples of clayey, silty, and sandy soil.

Teacher Background
This lesson encourages students to think about the differences in soil. Soil is a naturally occurring mixture of organic matter, water, air, and minerals that forms on the surface of the land.

At first, most young learners make no distinction between soil and dirt. However, the differences should become clear with more careful thought. Dirt is soil that is out of place in the human world; for example, dust on the floor or mud on your shoes is often called dirt. Soil is the useful substance in which our food grows; the outermost solid surface of Earth that supports our cities, houses, and highways; and the medium that contains the minerals for plant and animal life. This thin layer of material may mean the difference between poverty and prosperity—even life and death—for all who inhabit the planet, since soil is the medium in which most of our food is grown.

There are three main components of soil: clay, silt, and sand. Clay is the smallest particle, with less than a 0.002-millimeter diameter. Silt particles are between 0.002 and 0.005 millimeters in diameter, and sand is the largest particle, ranging from 0.05 to 2.0 millimeters. Each soil has a characteristic texture that

Subjects
Art, Language Arts, Science

Time
Prep: 30 minutes
Activities: 1 ¾ hours
(not including Extensions)

Dig-In! Hands-On Soil Investigations
General Soils
Soil composition, color, texture, formation, and landscapes

Soil Biology
Soil organisms, organic matter, decomposition, and composting.

Soils and Plant Growth
Soils and crops, soils and forestry, soil fertility

Soil Chemistry
Soil pH, nutrients, toxins in soil, chemical reactions in soil.

Soil Conservation
Soil erosion, soil quality, soil degradation, desertification

Soils and Land Development
Urban soils, waste disposal, soils and construction

Soil Forensics
Analyzing soils can help solve crimes. (*For students who have already studied about soils.)

http://www.soils4teachers.org/lessons-and-activities
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Good sports need good soil – Texture matters

2015 International Year of Soils
How is soil important for sports?

- As a running/playing surface
- For growing a playing surface
- Natural turf
As a running/playing surface

• Horse racing
• Dirt bike racing/BMX
• Dirt Track/stock car racing
• Cross-country running
• Tennis (clay courts)
As a growing medium for turf
What kind of soil is best for my sport?

Soil texture

• Sand
• Silt
• Clay
Why does soil texture matter?
Why does soil texture matter?

• Athlete’s Performance  
  – Speed  
  – Maneuverability  
• Safety of the athlete  
• Durability of the sports field/track  
• Management and maintenance costs  
  – Water holding capacity  
  – Resiliency of turf
What happens to a race horse if...

- Surface is too soft, or too sticky?
- Too hard?
- Too dry and dusty?
Churchill Downs Main Track

The Run for the Roses takes place on:

- 3 inches sandy loam cushion
- 5 inches sandy loam compacted
- 12 inches clay base
- 24.5 inches sandy loam/natural soil
Baseball diamonds

Soil is found:
- Warning track
- Pitcher’s Mound
- Baseline
- Infield turf
- Outfield
“Dirt” track auto racing

- Clay base
- Around 30% clay is preferred, to keep surface tacky.
- Organic materials (wood chips, decomposed hay,) can be added to help soil retain moisture.
Golf courses need good soil

USGA Specifications for a putting green:
• topsoil mixture (minimum thickness of 12 inches)
• above an optional 1.5-2 inch coarse sand layer
• above a 4 inch layer of washed pea gravel (¼ to 3/8 inches diameter)
• Over the 4 inch tile drain imbedded in native soil or fill material.
Golf courses need good soil

- For trap sand, the range is from 1.0 to 0.25 mm, which is sand ranging from coarse to medium.
- Maintenance includes topdressing with sand, (including fine sands), and aerating the soil and turf.
Conclusions

• Soil is Important for sports.
• Getting the soil right adds value to your favorite game.
• And even has value as a collectible!

Yankee stadium “dirt”
Thank you for listening!
For further information, visit:

Soils.org/discover-soils – information about all things soil!

Soils4teachers.org – Lesson plans, activities, etc. for teachers

Soils4kids.org – activities for the K-12 audience

Follow us on facebook.com/iheartsoil

Soils sustain life!
Soils Sustain Life

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1ST SESSION

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CONCURRENT RESOLUTION

Supporting the designation of the year of 2015 as the “International Year of Soils” and supporting locally led soil conservation.

Maine
Iowa
Montana
West Virginia
Join SSSA in Celebrating IYS:
Become a Friend of Soil Science
Biweekly news flash (email)

Trial membership:
• Electronic communications: bi-weekly Newsflash; Science Policy Report with an update on capital hill activities, funding opportunities, agency news, and more;
• Access to Soil Horizons magazine,
• Electronic access to member magazine, CSA News,
• Join/become involved in any of our 14 Divisions of Interest,
• Sign-up for a 30-day Digital Library trial subscription
• Receive specialized announcements of SSSA programs and services that may be of interest.

https://www.soils.org/membership