

## Sulphur (S)

**Top Producers:** U.S., Canada, China, Japan

Sulphur is soft and yellow. It comes from oil and natural gas. It is used to produce almost everything we eat, wear, and use. Sulphur, combined with rubber and heat, makes hard hockey pucks.

Sulphur goes into sulphuric acid, used for many things, including fertilizers and truck batteries.

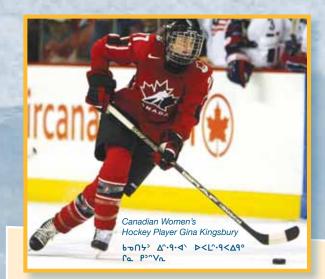
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Δ'dUrd a°Pr' o°C ·dΛ Þ\·Δr' λΓ' ∀d Lb PY, DL D2Do.\* Δ·Pσ << U1, dP, L1.Δ d·P, b ▷ያርσ·ላ` b ΓΓЬ`, b P"bL`, ¬°C <>ΓСЬ`\*  $\Delta q C^{\alpha} \rightarrow L \rightarrow \nabla \nabla L$ ,  $P < \Gamma_{\nu} \cdot d < > L$ ,  $P = \Gamma P \cap \nabla \nabla L$ ,\*

AYUYO' S.ACPO> 4,C OL DEDPP, LUJA,  $\Delta a < C^{\circ} C \wedge d^{-} a C \cdot \Delta P \Gamma b 9 \cdot \Delta^{\circ}$ ,  $\sigma^{\circ} C L b b C < \sigma J \cdot \Delta$ **⊳**Γσ^**P·4**\<sub>x</sub>



## ICE HOCKEY

Hockey might have originated as Aboriginal lacrosse or Mi'kmag field games. Modern hockey started being played in Montréal in the 1870s. From there, it spread to the U.S., and then Europe. The sport was added to the Olympic Games in 1920.

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## FIGURE SKATING

Figure Skating started in the 1800s, with skaters following defined patterns. In the 1860s, skate blades changed and dance and creative moves were introduced. Toe picks, added in the 1870s, allowed skaters to jump. Gradually, moves became more complex. In 1997, Canadian Elvis Stojko completed the quadruple/triple jump. The first Olympics to feature Figure Skating were held in England, in 1908.

#### $\sigma \Lambda \cdot \Delta < LC \Delta \cdot \Delta$

P ⊲በ σΓ·Δ <LCΔασ·⊲<sup>°</sup> 1800 Λ>αb·⊲; Γ1ጋ4<sup>°</sup> ∇ Δ^<σ⊳៤σ・√ 10- 1860 Λ>៤6・√, የ ላበ  $\triangleleft \cdot \nabla_{\sigma} b^{\circ}$   $\Gamma \cap \Delta^{\circ} \triangleleft \sigma \triangleright /_{\star}$   $\neg \cdot b^{-}$  1870  $\wedge \triangleright_{\alpha} b \cdot \triangleleft$ . rlp.d ep, dnd <rcγ.d.b.d ·Δι b du P.b.c. **ዻ∙**ጆሑቴ՚ የՐ ∙ዜብ∪√\* ഘየ₽₋ ୮የ ⊲しል, ∟ሀጋላ/ ⊾ ⊲ሀ  $\Delta\Delta^{\wedge}$ < $\sigma$   $\triangleright^{\circ}$   $\Delta\cdot\nabla\sigma$   $\flat^{\circ}$   $\lambda^{\circ}$  1997  $\lambda^{\circ}$   $\lambda^{\circ}$   $\lambda^{\circ}$   $\lambda^{\circ}$ ^·C△d, P PԺ·bԺ<Ժ▷° 7·b⁻ ▽ ·bሣበ/\* 1908 b  $\Lambda > \$ ,  $\nabla \cdot b\sigma \ \sigma^{\circ}C^{\circ} \ d\sigma L \ \nabla \ D \cap bU^{\circ} \ \nabla \ < L \cap \Delta c \sigma \cdot d^{\circ}$ שר אף אף אף עבר כן שף א>, ף עריספים,\*

#### Silica (SiO<sub>2</sub>)

**Produced widely** around the world

Silica comes mainly from quartz, found in white rock. veins, or beach sand. It is used to make eyeglasses, window panes, cellphones, computers, fibreglass insulation, and hockey helmets.

Amethyst is a purple quartz that is used in jewellery.

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# Aluminum (AI)

**Top Producers:** 

Australia, China, Brazil, India, Guinea

Aluminum is silvery white. Found in a rock called bauxite, it is the most common metal element in the Earth's crust. It is very light, easy to work with, and does not rust. It is used to make boats, hockey sticks, pop cans, foil wrap, and airplane propellers.

A 7.25 tonne block of aluminum can make a sheet of aluminum foil over 12.5 km long.

## **4.69**F<sub>3</sub>

L.4- P D2 L2, **ሳ**^የ`, የσካ **ሳ**^የ`

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#### SPEED SKATING

The first organized Speed Skating race took place in 1763 in England. The track was 24 km long. Lighter, sharper, and longer steel blades were introduced in 1850 in North America. Canada's first recorded race took place on the St. Lawrence River in 1854. In 1897 Norway, Germany, and Canada competed in the World Speed Skating Championship in Montréal. Canada won. In 1924, Speed Skating became part of the Winter Olympics.

1763 b Λ>αb' Þ°b⁻ b ·Δ b·9

#### Graphite (C)

**Top Producers:** 

China, India, Brazil, North Korea, Canada

Graphite, a soft form of carbon, is grey or black. It easily transfers heat and electricity. Graphite is used to make pencils, fishing rods, golf clubs, bicycle frames, hockey sticks, and oils for truck engines.

Pencils, once made with lead, now use non-toxic graphite cores.

#### $\cdot \Delta_{P} \Gamma = \lambda \cdot \nabla_{A} \Pi_{o} \quad \Delta \Lambda^{2} P_{o}$

L. d - P Dr Les  $\mathsf{L}\Delta\sigma^{\mathsf{v}}$   $\mathsf{d}^{\mathsf{o}}\mathsf{P}^{\mathsf{v}},\ \Delta^{\mathsf{o}}\mathsf{D}^{\mathsf{v}}$   $\mathsf{d}^{\mathsf{o}}\mathsf{P}^{\mathsf{v}},\ \mathsf{P}^{\mathsf{v}}\mathsf{V}\mathsf{D}^{\mathsf{o}}^{\mathsf{v}}$   $\mathsf{d}_{\mathsf{L}}\mathsf{d}$   $\mathsf{d}^{\mathsf{o}}\mathsf{P}^{\mathsf{v}},$ 

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## Titanium (Ti)

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**Top Producers:** 

Australia, South Africa, Canada, China

Titanium comes from the minerals rutile and ilmenite. It is lightweight, durable, and withstands very hot and cold temperatures. Titanium does not react with our bodies, so it is used to make replacement hips and knees. It also goes into many products like hockey sticks, skis, springs, and engine exhaust systems.

Titanium dioxide is used for white pigment in everything white, from paint to toothpaste.

#### √<</p>

L.4- P D2 L2

ሳ°ጋካሲላ, ዓ·ላ $\mathfrak{a}$  LbU·Δካካ°Р $\mathfrak{b}$ , b $\mathfrak{a}$ С°Р $\mathfrak{b}$ ,  $\mathfrak{b}$ 

 $\neg ACL$ ,  $\neg AUD$ , P  $\neg AC$ -P,  $\neg A$ - $\Delta$   $\Gamma_{\alpha}P\cdot\nabla_{\alpha}$   $\nabla_{\alpha}P_{\beta}\Gamma^{\sigma}\Gamma^{\alpha}P_{\beta}$   $\nabla_{\alpha}P_{\beta}\Gamma^{\sigma}\Gamma^{\alpha}P_{\beta}$   $\nabla_{\alpha}P_{\beta}\Gamma^{\alpha}P_{\beta}$   $\nabla_{\alpha}P_{\beta}\Gamma^{\alpha}P_{\beta}$ abs, se, all actions of the service Pr CPP, To TeachTP, LP·V, Δ·Pe ·Δι 4<C, L)- $Pe_{\lambda}$   $\Delta q$   $\Gamma P$  LbU $q_{\lambda}^{x}$   $\Delta \cdot Pe_{\Gamma}$   $d < C_{\lambda}$   $\Delta$   $PlCe_{\Gamma}q_{\lambda}$ <L^.9< $\Delta$ be $\Lambda$ ,  $\sim$ 9e $\Delta$  $\Delta$   $\Delta$ L\,  $\Delta$  $\Gamma$  $\Lambda$ SS\,  $\sigma$  $\Omega$ Lb b Dr ·da·Ab<U' Dl<os'x

V·Par → U <<</a>, V9 d·P, A ·4V(a·4, CV,9-SeVΔb, auc V9 blucVNbah, auc 9cbp d·pσ×

#### $\delta \nabla \cdot \nabla \cdot \nabla \cdot \Delta \cdot \Delta$

¬U ·∇Γ^∩ds·Δd^p\x σsca ¬⊳  $P_{\alpha}b = Q_{\alpha}b \cdot \nabla = Q_{\alpha}b$ ♥ absp, bsp, and Lb Peap <LCΔ·4<sup>^</sup>Pγ<sub>α</sub>Λ<sup>^</sup>·b 1850 b Λ>αb<sup>^</sup> P°b⁻ b \_0·bP DU ΔU9b³x Γ\_0·C  $\cdot$ ር $_{\circ}$   $^{\circ}$   $^{\circ}$ >C baC<sup>P</sup> 1854 b Λ>ab'x 1897 b ለ>៤b' P b·9 <^Pa>ን·ላ` ∇θ Lb LLa<sup>^</sup>P`, baC<sup>^</sup>P` Lb Φ'U Јσታσ`x baC^P^ Lb P <^Pa9°x 1924 b ∧>៤b` የ**ፓ**ታር∆∙∇∙Δ<sup>°</sup> የ  $4U \ L(\cdot 4^{Q_{\bullet}} \cdot 4) \ C) \ ^{Q_{\bullet}} \ V>, \ P$ JC.4º-4,\*

# CUTTING EDGE 6 -6-L6

# SKATES

The first skates used animal bones 5,000 years ago. Iron skates were made in 200 A.D. In the 1500s, Dutch people attached wood slats with blades to their shoes. Modern skates are made of steel and are used by hockey players, speed skaters, and figure skaters.

#### <LC $\Delta$ · $\Delta$ °P+ $\Delta$

 $b^{\vee}b^{-}$  b  $b^{\circ}C\sigma \cdot d^{\circ}$   $< LC\Delta \cdot d^{\circ}P^{\prime}a$ ,  $d \cdot \Delta + S^{\vee}$   $b^{\circ}ba$  P**₫<С·₾ ·₫⁴° σ₫₾'₾ ₽\$ ГСЭГС₾ ∧>₾х ▷°Ь⁻ Ь** 200 θ Λ>αβ'χ 7·β⁻ 1500 Λ>αβ·Ϥ, C⁻ Δσσ·Ϥ'  $V \cdot dV_{u}qe_{o}$  b  $dqpC \cdot d_{e}$  L\_Uq,  $\Delta$   $dqVCb_{e}$   $\Gamma P$  $4<C^{\circ}$  <  $LC\Delta \cdot 4^{\circ}P'\sigma'$  b <  $4<CC^{\circ}$  b <  $L^{\circ}\cdot 9<\Delta 9C^{\circ}$ , bPS+CΔΓ', Vd Lb b σΓ·Δ <LCΔΓ'<sub>x</sub>

# Ice, training, muscle, passion, determination...skaters need them all to get to the top of their sport. But there's more. The equipment, the arenas...all made with metals from the Earth. MINING MAKES IT HAPPEN

L^0·b\(\Gamma\), P^P\(\Delta\) \(\Delta\), \(\Delta\), \(\Delta\) \(\Delta\), \(\Delta\) \(\D D<LCA·d\ Pr P OCP\ · dOCP\x Je Ad doLx d<rc·A3, <LCA·∇br\, rr·∇ N·4N°d' 6 4<CP, 4°P' P DNσ6U°x JeΔ9·Δ' L6 6 Jr9L6'x

Steel is made from iron, carbon, nickel, chromium, manganese, and molybdenum. It is one of the most commonly used materials. It is used in buildings, tools, trucks, snow machines, outboard motors, axes, shotguns, snare wire, conibear traps, and sports equipment. Steel is often reused and recycled.

#### P L.P. V. VVV

ΔωD ·ΔΛ ·ΔΛU·ΔΛ<sup>^</sup>, ·Δ°blσ·Γ·Δ°dU°, b  $\cdot \Delta \Lambda U \cdot \Delta Z'$   $\sim \sigma \varphi \Delta \Lambda^{\circ}$ ,  $\cdot \Delta Z \cdot \Delta \Lambda^{\circ}$   $\rightarrow \Gamma \Gamma D^{\circ}$ ,  $\Delta \Delta D$ LbU· $d\Lambda^{\circ}$ ,  $\Delta$ d) ·d/d· $d\Lambda^{\circ}$ ,  $\nabla$ ·bdd<d $\Gamma$ DSCO-d\ DL b L'b·d\ A·dA^\x V·boL Dd'  $\triangleleft < C' \cdot \triangleleft ^{\circ}b \triangle b \sigma ^{\circ}, \ \land L \triangle b \sigma ^{\circ}, \ \triangleleft < \sqcap ? \cdot \triangle \ \triangleright \cup < \sigma \mathcal{J} ^{\circ},$  $^{\circ}$ P)\,  $^{\circ}$ Cr $^{\circ}$ Cr4<C, 2,C V9 9C, 4.P, 4,C PL P2CQ-4,\*

#### Chromium (Cr)

**Top Producers:** South Africa, Kazakhstan, India and soon Canada



Chromium comes from the mineral chromite and can be highly polished. It is used to make kitchen sinks, skate blades, and hockey mask cages. Chromium chemicals are used in the tanning of moose and deer hide, and in coloured paints.

Chromium, found in small amounts in apples and cheese, help to keep you healthy.

#### ·449·4V<sub>U</sub>/ PllP<sub>2</sub>

L.4- P 72 Les, 5.4a LbU· $\Delta$ 55°P, 65°C,  $\Delta$ 05 4°P a9 ρσC<sub>b</sub>

 $P \vdash AAA \cdot AVU$ , PUP,  $P \vdash AAA \cdot AVA$ ,  $P \vdash AAA \cdot AVA$ Plca·d,\* bl ·d·fo △ ·d·qapn,\* △·par <LC $\Delta$ · $\Delta$ ^P $\prime$ \sigma  $\Lambda$ · $\Delta$  $\Lambda$ ^\, <L^·· $\Omega$ < $\Delta$  $\Omega$ · $\Delta$   $\Delta$ ^D $\Omega$ σ  $4 \cdot b_{\Delta} \cdot 9 \cdot \Delta \sigma_{x} \quad \nabla \cdot b_{\sigma} L \quad \sigma_{\sigma} \quad 4 < C_{\sigma} \quad \nabla \quad D_{\sigma} C_{\sigma} \cdot 4$ <"·b>רb' אריסף >ר סיר בה סחטף, סיר בה ρ σσηΛΥΡΠЬ ጊ∽ΛΥΡσ\*

 $\forall V V_{c}$   $\varphi_{c} \nabla C \cdot P_{s}$   $\cdot \forall L P_{s} \wedge \nabla L P_{s} \wedge P \Gamma_{c} P_{c} \wedge \nabla C \cdot P_{s}$ Lel, auc rp ll, d bl Lovrusae.d,\*

#### Iron (Fe)

**Top Producers:** China, Brazil, Australia, India, Russia

Iron, the most common metal on Earth, comes from the minerals named hematite and magnetite. It is the main ingredient in steel, used in skate blades, hockey mask cages, trucks, snow machines, nails, and building supports.

Iron, as part of steel, is used 20 times more than all other metals combined.

#### $V \cdot \forall V_{U} / P \cdot L P_{2}$

L. d - P Dr Les ያንት<sup>3</sup> ላ<sup>1</sup>6/

 $\Lambda \cdot \triangleleft \Lambda^{\circ} \setminus \neg \Gamma \vdash \neg$  $V \cdot dV_{U} \wedge DLP_{0}^{*} \wedge \Delta \cdot P^{2} = d \cdot d \wedge \Delta \wedge DC \cdot d \wedge$  $\langle L^{\circ} \cdot 9 \langle \Delta 9 \cdot \Delta | \Delta^{\circ} \rangle \cap \sigma = \langle \Delta \cdot b_{-} \cdot 9 \cdot \Delta \sigma^{\circ} \rangle$ 

 $\sigma C \sigma \Delta \sigma \delta$ 



#### Nickel (Ni) **Top Producers:**

Russia, Canada, Indonesia, Australia

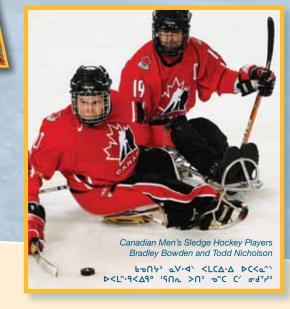
In Canada, nickel is found in yellow sulphide minerals such as pentlandite and pyrrhotite. Used mostly to make stainless steel, it is in skate blades, hockey mask cages, snow machines, trucks, batteries, airplane parts, spark plugs, and parts of the ice resurfacing machine.

#### P .4Vn.4, V.4V.,

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 $L \cdot 45 \cdot 6$   $b \cdot L^{\circ} 6 \cdot A \cdot A \cdot A^{\circ}$ ,  $< LC \Delta \cdot 4^{\circ} P r \sigma$  $\Lambda \cdot \Delta \Lambda^{\prime}$ ,  $\langle L^{\prime} \cdot 9 \langle \Delta 9 \cdot \Delta | \Delta^{\prime} \rangle \cap \sigma = \Delta \cdot b_{\Delta} \cdot 9 \cdot \Delta \sigma^{\prime}$ ,  $^{\prime} P \rangle$ ,  $4<n2\cdot\Delta$  >1<<rb/>><math>-5</ri> 



## SLEDGE HOCKEY

Sledge Hockey started in the 1960s in Stockholm, Sweden, Players sit in a metal frame on two Ice Hockey skate blades. Canada started a team in 1982. In 1994, the Paralympic Winter Games in Norway introduced Sledge Hockey. Team Canada won their first Olympic gold medal in 2006. Canada, Norway, the U.S., Germany, Sweden, and Japan have the best Sledge Hockey teams.

## <LC $\Delta \cdot \Delta$ $\triangleright$ C<e $^{\circ}$ <L $^{\circ} \cdot 9$ < $\Delta 9 \cdot \Delta^{\circ}$

1960 ∧>ab·< ▷ b < LC∆·∆ ▷ C<a^\  $\langle L^{0}\cdot Q \langle \Delta P \rangle \langle$  $\triangleright$ C< $\sigma$ \_9, < $\Gamma$ C $\nabla$ - $\triangleleft$ V $\cup$ -P  $\Delta$  b  $\triangleleft$ 9PC $\varphi$ - $\triangleleft$ b  $\nabla$  $\Upsilon$ P  $\Delta \Omega$   $\Delta C \cdot \Delta'$   $\Delta \cdot \nabla \sigma \delta \Delta'$   $\Delta \sigma L$   $\Omega$   $\Delta C \cdot \Delta \Omega < \Delta \Omega'$ >C baC^P'x 1994 b ∧>ab', ∇·bσ σ°C' ∇  $\Lambda > \$ ,  $\nabla \cdot b\sigma \ \sigma^{\circ}C^{\circ} \ b \ <^{\circ}Pag^{\prime} \ bac$  CD  $\neg b \ \Lambda > \$ La b  $\exists C \cdot \nabla \Gamma'$  b  $L^{\cap} P + \Gamma' \times b = C^{\cap} P^{\triangle}$ ,  $\exists D^{\circ} \cdot \nabla = d^{\cap} P^{\triangle}$ , Llar,  $\triangleleft_{\mathsf{U}} \mathsf{V}$  froby  $\vdash_{\mathsf{U}} \mathsf{V} \mathsf{U}$  $\mathsf{L} < \mathsf{\sigma}^{\mathsf{v}} \ \mathsf{d}^{\mathsf{o}} \mathsf{P}^{\mathsf{d}}, \ \nabla \cdot \mathsf{b} \mathsf{\sigma} \mathsf{P} \ \mathsf{L} \cdot \mathsf{d}^{\mathsf{-}} \ \mathsf{b} \ \mathsf{b}^{\mathsf{v}} \mathsf{P} \mathsf{P}^{\mathsf{v}} \ \mathsf{d} \mathsf{\sigma} \mathsf{L} \ \nabla$  $\Delta \mathcal{L} < LC \Delta \mathcal{L} \times$ 

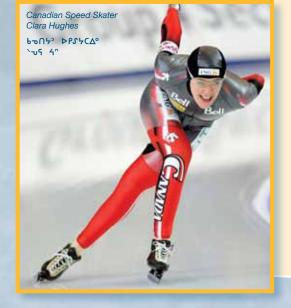
#### www.MiningMatters.ca

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Metal/mineral photos courtesy of the following: Coal Association of Canada: Coal; Fabre Minerals/www.fabreminerals.com: Sulphur, Quartz; PDAC Mining Matters: Dolostone, Limestone, Granite; R.Weller/Cochise College: Magnetite, Garnierite, Chromite, Graphite, Bauxite, Rutile, Gypsum, Gold, Silver, Copper, Cassiterite, Smithsonite, Sphalerite, Galena.

Other photos courtesy of the following: Skate Canada: Patrick Chan; Daktronics: General Motors Place scoreboard; Getty Images: Clara Hughes, Gina Kingsbury, Bradley Bowden and Todd Nicholson, Cindy Klassen; Kathy Beyan: Richmond Oval; Frank J. Zamboni & Co., Inc.: Zamboni® Ice Resurfacing Machine (Zamboni and the configuration of the Zamboni ice resurfacing machine are registered in the U.S. Patent and Trademark Office as the trademarks of Frank J. Zamboni & Co., Inc.).

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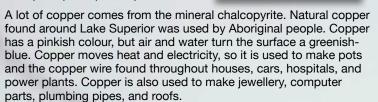


**Bronze** is made of copper mixed with tin. Over 5,000 years ago, people learned to harden copper with tin to make bronze tools, weapons, armour, and building materials. Today, bronze is used to make bells, musical instruments, medals, bearings, electrical connectors, springs, and roofing materials.

1. A·AA^\ Vd Lb NaA^\, ·A4° σAa.a Pl ΓCDΓCa A>a PCa'. Dog of P on Page C.L' Pr Page Dage Dr. Dr. Andre Vd Lb Nan'do' V DSCP' V L"b. dop Alaba, F19.A  $4<\Gamma(\cdot\Delta_{\alpha}, \Lambda\cdot4\Lambda^{\circ}d\cdot\Delta)$   $C=0^{\circ}C$  Lb  $\cdot4^{\circ}b\Delta b\sigma$   $4<\Gamma(\cdot\Delta_{\alpha})$ dlass', o°C Lb d<·box

#### Copper (Cu)

**Top Producers:** Chile, U.S., Peru, China, Australia



Small amounts of copper in our food keep us healthy. In our bodies, copper works with iron to make blood strong

#### 

L.4- P V2 L2

 $\Gamma \subset A^{\circ}P^{\circ}$ ,  $\Gamma \subseteq A^{\circ}P^{\circ}$ ,  $A^{\circ}P^{\circ}$ ,  $A^{\circ}P$ 

DL ΓdD5·4Λ°\. 4°C DΓ DSCσ·4° ∇ Pσb·Δσ′ Δ"dU·47σx  $\Delta$ e)  $\Gamma$ d $\triangleright$ 5· $\Delta$ 6° Ve $\rightarrow$ 7 Ve $\rightarrow$ 9  $\ensuremath{ \mbox{\sc d}}\ensuremath{ \mb$ ΦΛ`, ∇ Þ∾∙ዺቭኇባጜል ኒዓ⊳ኯ∙ቒѴ。, ቒ<ር。 Δ ዓብሃኒ₽በ, ቬኒበ。  $\sigma^{\circ}$ ር Lb  $\Gamma d \triangleright 1 \cdot 4 \wedge^{\circ} P + \Lambda^{\circ} \Phi$  b  $4 < C' \cdot 4 ^{\circ} \Phi \Delta b \sigma'$ ,  $\Phi L < \sigma J'$ ,  $4dY\cdot\Delta b\Gamma d^{\prime}$ ,  $\sigma^{\prime}C$  Lb b  $P\Gamma$   $\Lambda^{\prime}<\sigma P$   $\sigma \Lambda\cdot\Delta b\Gamma\cdot b_{\star}$   $\Gamma dP\cdot b\cdot 4\Lambda^{\prime\prime}$ 

·∇L·CFP, L9, bl F.P·4, L9\*

#### Tin (Sn)

**Top Producers:** 

China, Indonesia, Peru, Bolivia

Tin comes from the black mineral cassiterite, but it is silvery-white. Around 3500 B.C., people discovered that mixing it with copper made a harder metal, bronze. Tin is used to coat steel containers and in solders to join pipes and wires.

Tin is used to make glass for windows and automobiles. Melted glass poured onto melted tin spreads out to form a level surface.

#### $\mathsf{U}^{\sigma}\mathsf{V}_{\mathsf{U}}$

L.4- P P? L.

 $\mathsf{L}\Delta\sigma^{\mathsf{v}}$  ሳ°ף\,  $\Delta^{\mathsf{v}}\mathsf{Dos}$  ታ ሳ°ף\,  $\mathsf{V}\mathsf{P}$  ሳ°ף\,  $\mathsf{>}$   $\mathsf{c}\mathsf{A}\mathsf{b}$  ሳ°ף\

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## WINNING MEDALS

In the Arena... MINING MAKES IT HAPPEN <LCA.ALGY..... JOA9.A' Lb b Orglb'x Athletes compete to win medals. Olympic medals are special and say something about the country where the Games are held. The Vancouver 2010 medals featured Aboriginal art on discs shaped to represent rolling waves, drifting snow, and Canadian mountains. The gold and silver medals must be made from almost pure silver metal. The gold medal is covered by a thin coating of pure gold.

#### b <^Pabo.d\ <.cl\

b  $\exists C \cdot \nabla \Gamma' \cdot \Delta b \cdot 9 <^{\circ} Pa 9 \cdot 4' < \cdot a b \cdot 4$  $<^{\circ}$ Pabara' CD  $\neg$ P  $\wedge$ P' b  $\neg$ Cr $\triangleleft$ Ara'  $\neg$ Ara P'\undergara'  $\Delta_{\rm U}$ C U<LJ· $\Delta$ PP $\Delta$ - $\Delta$ ,  $\Delta$   $\Delta$  $\Delta$ LP $\Omega$ /  $\Delta$  $\Delta$ F  $\nabla$ C· $\nabla$ , P  $\nabla$ C ۱۲۰۵ مرمار، ۷٬۹۶۰ دردار و ۱ محالیار، حومر درموره b q < c,  $\Delta$   $c < d = \nabla P \cap A$ ,  $\Delta$   $r = P \cap A$ ,  $\Delta$   $r = A \cap A$ Lb  $\cdot$ 4 $\Gamma$ 5 b  $\Delta$ C $\cdot$ 6 $\Gamma$ 6 baC $^{\circ}$ 6 $\Gamma$ 7  $\nabla$   $\nabla$ 5 $\Delta$ 1 $\Gamma$ 7 < $\cdot$ 6 c  $\Gamma$ 7 b  $\Gamma$ 8 baC $^{\circ}$ 8 $\Gamma$ 7 baC $^{\circ}$ 9 baC۵<۵۰ م ه ۱۵ م **.**⊲५٩.⊲٧,6५, <,°-\*



Coal

**Top Producers:** 

South Africa, Russia

 $\cdot \Delta_{\rho} \Gamma^{\rho} \Gamma^$ 

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L.4- P D2 Les

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Aggregates

**Produced widely** 

around the world

44cP<sub>2</sub>

L1.Δ V9 **4**∇C₀

•Φ^6Δ6σ9•Δ 9•6σ\*

Gallium (Ga)

**Top Producers:** 

China, Germany,

thermometers.

-44.6

L·4- P Q2 Ley

ይ ⊳ር ⊳**ኒ⊳**Γ₽, ⊳<u></u>Lº-Ն∙∇ペብດở

Kazakhstan, Ukraine

and construction materials.

China, U.S., Australia, India,

Coal is made of carbon (C) that formed from plants that grew in

great swamps long ago. Over many years, dead plants formed

layers that got squeezed together, heated, and changed into

Canada, Aboriginal people collected coal for their fires. Some

coking coal, is added to iron to make carbon steel. That steel is

coal. Coal is burned to make heat and electricity. In parts of

coal is very soft and some is very hard. A hard coal, called

Coal is used to make many items such as soap, aspirins,

solvents, dyes, and plastics and fibres like rayon and nylon.

 $\mathsf{L}\Delta\sigma^\mathsf{v}$  **ላ**^የ\, Г $\mathsf{J}$  Ј $\mathsf{J}$  Ј $\mathsf{J}$  ላ^የ\, ላ^ጋ $\mathsf{J}$  ሊንበታ ላ^የ\,

9.6c b P oc·APP L°9d\ ·√b-, VdCo ·√r ▷S>Lb\

· A blo J d U° x F 1/ A> a P b, 9 ba b o C APP b

P JALLER, AN AFPC. A ST LL. AP. a. ▼ PSU9 Lb

∇ ·Δ ▷SCσ·4\ PYYЬ' ¬°C LЬ ▷Fσ°P·Δ'dU°, ▷U

 $41^{\prime}$  ·Δ'blo 5''ሀ ·  $41^{\prime}$  ይነ የ ይነት ላ ·  $41^{\prime}$  ይነ የ ይነት ላ ·  $41^{\prime}$  ይነት የ ይነት የ ይነት ላ ·  $41^{\prime}$  ይነት የ ይነት

 $\Delta$   $\Gamma_{\alpha}P \cdot \nabla_{\alpha}P \cap \Omega_{\alpha}P \cdot \nabla^{\alpha}P \cap \Omega_{\alpha}P \cap \Omega_{\alpha}P \cdot \nabla^{\alpha}P \cap \Omega_{\alpha}P \cap \Omega_{\alpha}P$ 

 $\cdot$ 4°b $\Delta$ b $\sigma$ ', 4 $\sim$ b $\sigma$ ',  $\Gamma$ 5  $\Gamma$ L $\sigma$ ',  $\sigma$ 0 Lb  $\triangleright$ U $<\sigma$ 5' $\times$ 

·VAPPCLAIO AU VIL·σ\* V.·PLP. TP PT ·VAPPCLAIO.

bac^p`, ∆oo·d` L·dUa·Ld<° ·∆"blos"dUo° ♥ dC·d9f`x

LJJ4,  $\nabla \chi$  <<C,  $\cdot \nabla_{A}P\Gamma^{2}A\Pi_{0}$   $\triangle$   $\rightarrow \chi C^{2}G\cdot A$ ,  $d\cdot P$ ,  $CVA^{-}$ 

Crushed stone, sand, and gravel are very common geological

materials. Dolomite, limestone, and granite are often mined for

aggregate. Aggregate is used to make roads, airport runways,

house foundations, sewers, and mixed with cement, fertilizer,

It takes about 50,000 tonnes, or seven dump truckloads, of

 $\mathcal{S} \cdot \mathsf{b} \cdot \mathsf{d} \sigma$ ,  $\mathsf{a} \mathsf{b}^\circ$ ,  $\mathsf{b} \mathsf{d} \mathsf{b}^\circ$ ,  $\mathsf{b} \mathsf{d} \mathsf{b}^\circ$ ,  $\mathsf{b} \mathsf{d} \mathsf{b}^\circ$ 

 $\Delta \mathcal{S}$   $\forall \forall \sigma ^{\circ} b ^{\setminus}_{\times}$   $\exists \sigma \nabla \rho \cap \phi$   $\forall \sigma \in \nabla$   $\nabla \sigma \circ \phi \cap \phi \cap \phi$ 

DVV  $ALP_{0}^{x}$   $A\cdot A$  P  $ALP_{0}$   $A< UL_{0}$  A  $DL(Q\cdot A)$ 

V<sup>2</sup> P<sup>2</sup> A<sup>2</sup>P·Δ Π<Δb, bl J<sub>2</sub>Pσ<sub>0</sub> ⊳C PσC<sub>2</sub>b,<sup>x</sup>

Gallium is not common in the Earth. It occurs mixed within other

minerals such as the zinc mineral sphalerite. Most mined gallium

is mixed with arsenic to form gallium arsenide, which is used to

make light-emitting diodes (LEDs), laser diodes, and solar cells.

Solid gallium melts in the human hand. It becomes liquid near

room temperature and can be used to make high temperature

aggregate to build one km of Trans-Canada Highway.

used to make buildings, bridges, ships, and cars.

#### Gold (Au)

**Top Producers:** 

China, South Africa, U.S., Australia

Gold is very rare. It is soft, conducts heat and electricity, and is not damaged by the weather. Gold occurs as a pure metal and also within other minerals. It is used mostly to make coins, jewellery, and ornaments. It is also used in medical equipment and the electronic components in computers, cellphones, and ice resurfacing machines.

Gold coatings on windows help keep buildings warm in the winter and cool in the summer.

#### ⊳ካ·Δ~σካαΛ°\

L.4- P V2 Le,

 $\mathsf{L}\Delta\sigma^{\mathsf{c}}$   $\mathsf{d}^{\mathsf{c}}\mathsf{P}^{\mathsf{c}}$ , S・ $\mathsf{d}_{\mathsf{D}}^{\mathsf{c}}$   $\mathsf{L}_{\mathsf{B}}\mathsf{U}\cdot\mathsf{D}_{\mathsf{c}}\mathsf{D}_{\mathsf{c}}\mathsf{P}^{\mathsf{c}}$ ,  $\mathsf{L}_{\mathsf{D}}^{\mathsf{c}}\mathsf{D}_{\mathsf{c}}\mathsf{D}$ 

To LJU, ⊳Γ\* ¬υPo' ·∇LCΓP, b2Ω, Δ9 ΓP  $PL_{Q_0} L_{Q_0} L_{$  $P\Gamma$   $P_{\alpha}$   $P_{\alpha}$  hoታ $_{\Delta}\Lambda^{\prime}$ ժ $_{\Delta}\Lambda^{\prime}$ ,  $\cdot$  $\Delta\cdot\nabla$  $_{\Delta}\Lambda^{\prime}$  $_{\Delta}$ ,  $\sigma^{\prime}$  $_{\Delta}$  $_{\Delta}\Lambda^{\prime}$  $_{\Delta}$  $^{\circ}$ Οθωσ $^{\circ}$ Ο  $^$ 4<CP  $\Lambda$ P bC $\Lambda$ DD, b << $\bot$ CC $\sigma$ C $\Lambda$ D b  $\Delta$ DFC $\Delta$ D $\sigma$ C  $b \Lambda^c < \sigma P L^{ \cdot \cdot } b \Gamma \cdot \Delta \sim \sim \Delta b \Delta_x$ 

hoነ· $\Delta$ ራ  $\sigma$ ታ  $\sigma$ ለ ho 

#### Silver (Aq)

**Top Producers:** 

Peru, Mexico, China, Chile

Silver occurs as a pure metal and also within other minerals. It is soft, conducts heat and electricity, and can be highly polished. Silver is used to make coins, medals, jewellery, silver spoons, batteries, catalytic converters in vehicles, electronic components, mirrors, and solar cells, which make electricity from the sun.

Silver kills germs. It is used in antiseptic bandages, bacteriareducing cellphone covers, odour-reducing clothing, and water purifiers

#### ᠂ᡏ᠘ᠳᡐᠳ᠘ᠳ᠘

L.4- P V L?

VP  $d^nP^n$ ,  $T^nP^n$   $d^nP^n$ ,  $L\Delta\sigma^n$   $d^nP^n$ ,  $L\sigma^n$ 

 $P \sigma b \cdot \Delta \Pi$ ,  $V \rightarrow V \cdot d V \cdot$  $PG^{P}\Delta^{Q}U^{\prime}$ ,  $\sigma^{C}\Delta^{Q}d\sigma bU^{O}$ ,  $\nabla^{C}\Delta^{C}\Delta^{C}$  $\Gamma$ 

 $\triangle A \Gamma \cdot A A G = A \nabla V$ , A < C,  $\Delta = A \nabla V$ ,  $\Gamma A \cap A \cap A$  $\nabla$  <4PC $\sigma$ · $\sigma$ \  $\Delta$ d $\Lambda$ r $\Delta$ \,  $\Delta$ d $\Lambda$ r $\Omega$ \,  $\Delta$ d $\Lambda$ \,  $\Delta$ d $\Lambda$ r $\Omega$ \,  $\Delta$ d $\Lambda$ \,  $\Delta$ d $\Lambda$ \,  $\Delta$ d $\Lambda$ \,  $\Delta$ d $\Lambda$ \,  $\Delta$  $\Gamma \cdot \sigma \rho L C \circ A \wedge \Phi V_{x}$ 

#### KEEPING SCORE

Ice Hockey is part of Canadian culture. It is played and watched in small communities and large cities. Vancouver, B.C., hosted the 2010 Olympic Ice Hockey games in an arena that has a large video scoreboard weighing more than 22,000 kg. The scoreboard uses metals to create the red, blue, and green colours of the video picture.

#### $\Gamma \Lambda \sigma \nabla \partial \cdot \nabla_{\sigma}$

 $^{\circ}$ ር  $^{\circ$  $V'd>^{\circ}$ ,  $\Lambda Y$ ,  $\Phi'C$  < $LC\Phi \cdot \Phi PLA$ ,  $\Phi PLA$  $\Delta^{\alpha}$  dhe has a contract, the properties and the properties are a properties and the properties are the properties and the properties are the p ש<sup>^</sup>( Lb ·4°d·Δ >>·4"d+αU' 4σL b L+α°U<σ'x



# Gypsum (Caso<sub>4</sub>2H<sub>2</sub>0)

China, U.S., Iran, Spain, Canada

Gypsum formed long ago when ancient ocean waters evaporated,

leaving it behind on dry ocean beds. It is soft and has many colours: white, grey, red, brown, and yellow. Gypsum is used to make construction drywall, caulking, paint, and Portland cement, an ingredient in concrete.

Teachers use coloured chalk to write on blackboards. That coloured chalk is a type of gypsum.

#### 44cp3

L·d- P V2 L26U/

 $\mathsf{L}\Delta\sigma^{\mathsf{v}}$   $\mathsf{A}^{\mathsf{o}}\mathsf{P}^{\mathsf{v}},\;\mathsf{\Gamma}\mathsf{S}\;\mathsf{JdL}^{\mathsf{o}}\;\mathsf{A}^{\mathsf{o}}\mathsf{P}^{\mathsf{v}},\;\Delta\mathsf{G}^{\mathsf{o}}\;\mathsf{A}^{\mathsf{o}}\mathsf{P}^{\mathsf{v}},\;\mathsf{n}\mathsf{V}^{\mathsf{a}}\mathsf{o}\;\mathsf{A}^{\mathsf{o}}\mathsf{P}^{\mathsf{v}},\;\mathsf{b}_{\mathsf{a}}\mathsf{C}^{\mathsf{o}}\mathsf{P}^{\mathsf{v}}$ 

LPΠ·∇ PP·∇το Δ9 ΓΡ · ΦΥ ΦΥ·∇το\* Φ·Φ Διαθο Δ9CΦ · Tr >\$C++4' b 42++4' AFFC' b 4<FC++4', P<D++6', SOVAb, P ULYAPPAPPA, ALAPPAPPA,

6 Popalary astan de are a proper d drapa, b pl plca.daa.

#### Limestone (CaCo<sub>3</sub>)

**Top Producers:** 

China, U.S., Russia, Japan, Germany

Limestone is a rock mostly made of the mineral calcite. Calcite formed from the remains of corals and sea shells that accumulated long ago on the beds of warm oceans. Limestone is a key building material, cut into building blocks or crushed to go into cement. Limestone is also used to make glass, including windows, bottles, windshields, and fibreglass insulation.

The Great Pyramid of Giza, one of the Seven Wonders of the Ancient World, is made entirely from limestone.

#### 

L·d- P V2 L2bU\

 $P_{\nu}P_{\sigma}$   $A_{\nu}$   $A_{\nu}P_{\nu}$   $A_{\nu}P_{$  $\triangleleft \cdot \triangle + \Im^{\vee} \quad \triangleright^{\wedge} b = P \quad \triangleright \Gamma \quad \triangleright \mathcal{I} \triangleright^{\circ} \quad \cdot \nabla^{\vee} b^{-} \quad b \quad \triangleright \Gamma \quad L \cdot \triangleleft + \exists \cap^{\circ} UP \quad b \quad P$  $\Delta \mathcal{S}$  <9U, blpL $_{\tau}^{*}$  >7, .4 $_{\tau}^{*}$ 9P7,  $\Delta \mathcal{S}$  4<U5,  $\Delta$  9b91,  $DSC\sigma \cdot d' S> \cdot d\Lambda^{\circ}$ ,  $< ^{\circ} < > \cdot \Delta_{\alpha}\Lambda^{\circ}$ ,  $\Lambda \cdot d\Lambda^{\circ} d_{\alpha}b^{\circ}$ ,  $D \cup < \sigma^{\circ}$  $\sigma$ b' <'<>·Δ',  $\sigma$ 'C ·d'b $\Delta$ b' Pe' $\sigma$ b'<sub>x</sub>

b  $\Gamma S^{\prime}$   $\sigma^{\circ}$   $C^{\prime}$   $\Delta C + \Delta C$  $\nabla \cdot b \sigma L \ \forall \forall b \ \sigma \cdot \forall b \ b \ L = b \ L U \cdot \Delta = \cdot b \cdot D \cdot b = b \cdot \Delta = b$ >C^P`, ~2 Λd b Δ^•bd′ 4dσ ∇ P 4<Πd′x</p>

#### Zinc (Zn)

Zinc minerals usually occur with copper or lead minerals. covered metals are used in vehicles, bridges, and building

Humans, animals, plants, and even tiny organisms need zinc to function. Zinc helps us taste and smell and keeps our hair and

#### 

L·d- P ∇2 L2bU\

 $\mathsf{L}\Delta\sigma^{\mathsf{u}}$   $\mathsf{d}^{\mathsf{o}}\mathsf{P}^{\mathsf{v}}$ ,  $\mathsf{d}^{\mathsf{o}}\mathsf{J}$   $\mathsf{u}$   $\mathsf{d}^{\mathsf{o}}\mathsf{P}^{\mathsf{v}}$ ,  $\mathsf{V}$   $\mathsf{d}^{\mathsf{o}}\mathsf{P}^{\mathsf{v}}$ ,  $\mathsf{L}\mathfrak{L}^{\mathsf{o}}$   $\mathsf{d}^{\mathsf{o}}\mathsf{P}^{\mathsf{v}}$ ,  $\mathsf{b}_{\mathsf{u}}\mathsf{C}^{\mathsf{o}}\mathsf{P}^{\mathsf{v}}$ 

 $\sigma^{\circ}$ C  $\Lambda d$  <  $^{\circ}$ Prbarbbb'  $_{x}$   $\Gamma^{\circ}$ C $\Delta$   $\Phi \cdot \Phi \Lambda$   $\Phi \cdot \Phi \cdot \Phi$  $\nabla \sigma$   $\nabla \sigma$ bl a.pqubx pp p b lengaphb v.av.p .ac.a  $DU < \sigma S'$ ,  $d \sim b \sigma'$ ,  $\sigma' C \cdot d \cap b \Delta C \sigma d < \Gamma C \cdot \Delta \sigma' \times \nabla d D D$ P  $\Delta S$   $Ub^{\circ}U < \sigma^{\circ}$   $Uc \wedge S^{\circ}$ ,  $Sc^{\circ}V \Delta bc$ ,  $\sigma^{\circ}C$  Lb b  $4 \cdot b^{\circ}UP$ .d°U&Lb&\*

 $\Delta \sigma \sigma \cdot \Phi$ ,  $\Phi \cdot \Phi \circ \Phi$ ,  $\Phi \cdot \Phi \circ \Phi \circ \Phi$ P 4ARULF & VFUSTP SC. APC.PF PD Lb **4<UYLPb**\*



### BUILDING DREAMS

in London, England and named the Glaciarium. In 2010, modern building building's roof is made from trees killed by the mountain pine beetle. The

#### ▼ Jrbu' b ∆s Jru4erbu

 $P\Gamma$   $\sigma$ C <L $^{\circ}$ 9< $\Delta$ b $\sigma$ 9 $^{\circ}$ 4 $^{\circ}$ 7 $^{\circ}$   $\Delta$  $\sigma$ 0 $^{\circ}$ 9 $^{\circ}$ 4 $^{\circ}$ 9 $^{\circ}$ 6 $^{\circ}$ 9 $^{\circ$  $\neg C \cdot \neg d = A \cdot \neg d = A$ የቦЬΓ` P Δ\$ ▶\$4Ьσ·4° 1876 Ь Λ>αЬ'x `cተ4ና' Δ\$σ-6+ Ь P  $\triangleright S \triangleleft /_{\times}$  2010 b  $\land > \triangleleft b \land, \land > \sigma$   $\neg C \cdot \triangle \cdot \triangle \lor$  b  $\land \triangle C \cdot b \land \neg C \vdash A \land \land \triangle \neg$  $P^{\mu}$   $P^{$  $\forall \sigma L \ b \ P \ \Delta S \ TC \cdot \forall \sigma \cdot \forall \Delta', \ \sigma \approx 4$   $\Rightarrow \langle L'\Delta d \langle \Delta P \cdot \nabla' \ CP \ TC \cdot \forall \sigma \cdot \Delta',$  $^{\circ}$  CP Jq, P <<  $^{\circ}$  4 $^{\circ}$ <  $^{\circ}$   $^{\circ}$  4 $^{\circ}$  Cb JC·4 $^{\circ}$  4 $^{\circ}$  J·P\_  $^{\circ}$  DU  $\neg C \cdot \neg C$  $P = A A A C^{\prime} + A C^{\prime} A$ L"b· $extsf{d}^{\ }$   $\Lambda$ · $extsf{d}^{\ }^{\ }$   $\Gamma$   $extsf{d}^{\ }$   $extsf{c}^{\ }$   $extsf{d}$   $extsf{L}$   $extsf{b}$   $extsf{c}^{\ }$   $extsf{d}$   $extsf{d}$ 

#### Lead (Pb)

Lead, found in the mineral galena, is heavy and resists corrosion.

#### <^P76- 476-63

L·d- P V2 L2bU\

 $\mathsf{L}\Delta\sigma^\mathsf{v}$   $\mathsf{d}^\mathsf{o}\mathsf{P}^\mathsf{v}$ ,  $\mathsf{d}^\mathsf{o}\mathsf{D}$ ካሲት,  $\mathsf{\Gamma}\mathsf{S}$  Jall'  $\mathsf{d}^\mathsf{o}\mathsf{P}^\mathsf{v}$ ,  $\mathsf{V}\mathsf{P}$   $\mathsf{d}^\mathsf{o}\mathsf{P}^\mathsf{v}$ 

 $\mathfrak{S} \cdot \mathsf{bPN}^{\circ}_{\mathsf{x}} \ \mathsf{d}_{\mathfrak{D}^{-}} \cdot \Delta_{\mathfrak{Q}}, \ \mathsf{D} \mathsf{L}^{\mathsf{c}} \ \mathsf{d} \mathsf{d} \mathsf{l}^{\mathsf{o}} \ \mathsf{\nabla} \ \mathsf{D} \mathsf{L}^{\mathsf{d}} \mathsf{d}^{\mathsf{o}} \ \mathsf{C} \mathsf{N}^{\mathsf{d}^{-}} \ \mathsf{d}_{\mathfrak{Q}}$ 

 $\Delta \alpha < \Gamma \Delta' \times \nabla d d \rightarrow C \alpha' \wedge C \alpha' \wedge$  $\nabla_{\nu}V_{-}$  9C/  $\theta \cdot P_{\nu}$ 

An important part of making Zamboni invented the first



In 1967, his company started a second manufacturing plant in Brantford, Ontario. Since the creation of the first machine, more than 9,000 have been made. How does the Zamboni® ice resurfacing machine work? First, it uses a sharp steel blade to shave a thin layer from the ice. Augers collect the shavings and put them into a snow tank. It then cleans the ice surface with wash water before using a cloth towel to spread clean water over it. Along with steel parts and lead-acid batteries, the Zamboni® ice resurfacing machine is made with many metals and minerals from the Earth.

 $L\cdot d^-$  b ac· $\nabla \sigma$  (·b) Pr  $\Gamma$  ·as' b as <L(Ab $\sigma$ ·d).  $\nabla$ ·b $\sigma$ L L^·br L^.bT b  $\Delta S$  <LC $\Delta$ e $\sigma$ .d. 'S^\ \> $\sigma$   $\Delta S$  $\sigma$ bd b  $\nabla b$  \>SC' ▷ገσ° b ~~Δbbσ·ላσσ` 1949 b Λ>αb` ¬U bc>σን b ΔſbU`  $P \rightarrow C^{\circ} (S^{\circ}) \rightarrow A^{\circ} \Delta C \rightarrow A^{\circ}$ ,  $\rightarrow U_{\perp} \rightarrow A^{\circ}$ ,  $\rightarrow C \rightarrow C^{\circ} P^{\circ} \times A^{\circ} A^{\circ}$ 9·β, ΓΟ·∇VC, 9σ\* b.·β Γβ bluc<·dσραια, ασ Γυ·βL ·<Γι  $\triangleleft$ 'C,  $\Gamma$ '· $\nabla$   $\triangleleft$   $\triangleleft$   $\triangle$   $\triangleleft$ 'P' P  $\triangleright$ < $\square$ bU· $\triangleleft$ \*

# Hockey is a popular activity in many Aboriginal communities. Playing

hockey on outdoor ice rinks is common, but indoor rinks let people skate anytime, rain or shine. The first artificial ice rink was built in 1876 technology and design went into the Winter Olympics Speed Skating arena in Richmond, B.C. The Richmond Oval has space for two hockey rinks or eight tennis courts when the Speed Skating track is not in use. It could seat 8,000 people at the 2010 Winter Olympics. To prepare the construction site, builders used 170,000 cubic metres of sand. The building incorporates 5,600,000 kg of steel rebar and is supported by 2,200 stone columns.



China, Australia, U.S., Peru

Today, lead is used mostly in lead-acid batteries like those found in cars and trucks.

Lead can be recycled almost forever without changing its physical qualities. Most old lead-acid batteries are recycled -- more than any other consumer product.

٩٠٩ <^٩٢٥ طرحه، ٩٤٥، ٩٢٥، طرح، عربه٥٠ عم عرب ما

 $\Gamma_{\Phi} \wedge \nabla_{A} \wedge \nabla_{\Phi} \wedge \nabla_{A} \wedge \nabla_{\Phi} \wedge \nabla_{\Phi$ 



good ice is the ice resurfacing machine. People love watching the machine give scratched ice a shining new surface. Frank self-propelled ice resurfacing machine in 1949, in California.

#### ∇ PLepe. √

**Top Producers:** China, Australia, Peru, U.S., Canada

In Canada, zinc comes from a zinc mineral named sphalerite. A lot of zinc is used for galvanizing, a process that puts a thir layer of zinc on iron and steel to prevent rusting. These zincconstruction. Zinc minerals go into glowing dials, X-ray and TV screens, paints, and fluorescent lights.

nails healthy.

ΓΔσ<sup>ν</sup> 4<sup>^</sup>P<sup>\</sup>, LL<sup>2</sup> 4<sup>^</sup>P<sup>\</sup>, b\b<sup>^</sup>C<sup>2</sup> 4Pυ<sub>L</sub>4<sup>2</sup> Pob·Δobup dCPb 9·ba dn ΔC·b'x dc dol b  $\neg \nabla \nabla P \cap A$  \  $\neg \nabla \nabla \nabla P \cap A$  \  $\neg \nabla \nabla \nabla P \cap A$  \  $\neg \nabla \nabla \nabla P \cap A$  $\cdot \triangleleft \cdot \nabla \triangleleft \wedge \Gamma$  b  $\cdot \triangleleft \cap U = bb = \cdot \triangleleft \wedge$  b  $bb = bb = \cdot \triangleleft \wedge$  b  $bb = \cdot \triangleleft \wedge$  b  $bb = \cdot \triangleleft \wedge$  b  $bb = \cdot \triangleleft \wedge$ 

 $\Delta$  Lhc.4,  $\nabla$ F .4h.8 $V_{u,v}$  Ubn< $\Phi_{v}$   $\Delta$  C9 $\Phi$ Pn,\* 4U IPPL, △ ISON, P VS BSON, PUC △-CC, △