



## REVIEW WORKSHOP 1

1). Fill in the gaps

### Melting Glaciers Uncover Nutrient-Rich Soil

As the ice melts, it deposits <sup>1</sup>  silt. Silt is very small sand, <sup>2</sup>  or other material carried by running water.

"It's a kind of <sup>3</sup>  material," said Minik Rosing. He is a <sup>4</sup>  Greenlander and professor at the University of Copenhagen.

Called <sup>5</sup>  rock <sup>6</sup> , the silt is crushed to <sup>8</sup>  particles by the <sup>9</sup>  of the melting ice. One billion <sup>10</sup>  of the silt is deposited it per year on Greenland, the world's largest island.

<sup>13</sup> Rosing and his team have found the nutrient-rich <sup>11</sup>  improves plant <sup>12</sup>  when used in farms. It also absorbs <sup>13</sup>  from the air in the <sup>14</sup> .

<sup>16</sup>  from the University of Ghana were able to <sup>17</sup>  corn production by 30 percent using <sup>18</sup>  rock <sup>19</sup> . The <sup>20</sup>  decreased the effect of rain and <sup>21</sup>  on poor <sup>22</sup> .

The <sup>23</sup>  size of the silt's <sup>24</sup>  is what allows plants more access to nutrients, including <sup>25</sup> , calcium and silicon compared to normal, rocky <sup>26</sup> .

"We are the <sup>27</sup>  in this project where we <sup>28</sup>  know that it works," Rosing said. "There are many <sup>29</sup>  between this and a big <sup>30</sup>  industry, but the potential is <sup>31</sup>  there."

#### Absorbing Carbon dioxide

The tiny size of the silt's particles also helps speed up a natural process in which rocks absorb carbon dioxide (CO<sub>2</sub>).

When the silt <sup>32</sup>  in <sup>33</sup>  and releases its nutrients, a <sup>34</sup>  reaction occurs that absorbs carbon dioxide from the atmosphere. The silt is eventually deposited in the sea.

The idea of putting tiny rock in farmland is not new. But the method has gained more interest because of the discovery that it can absorb CO<sub>2</sub>.

"That realization has been a <sup>35</sup>  for a lot more research in this area," said David Beerling. He is a professor at the University of Sheffield and head <sup>36</sup>  of a study on crushed basalt, a tiny volcanic rock.

The study found that spreading finely crushed basalt on fields, as well as helping crops to grow, removes CO<sub>2</sub> from the atmosphere. And it does so at a cost about <sup>37</sup>  to other methods of carbon capture.

Such detailed research has not been done for glacial rock flour. But tests by the scientists in Copenhagen found that one ton of glacial rock flour would accept between 250 and 300 kilograms of CO<sub>2</sub> when applied to fields. That may also permit farmers to sell that as carbon credits.

#### Commercial production

Greenland's new <sup>38</sup>  hopes the silt can one day can help the economy as well as permit the country to move away from some kinds of <sup>39</sup> .

"We don't need to <sup>40</sup>  off the top of a mountain or build a processing plant," Greenland's resources minister told possible <sup>41</sup>  in September.

<sup>42</sup>  officials will present the mineral at a mining meeting in Vancouver early next year, but say commercial mining and use could be years away.

The scientists at the University of Copenhagen and the University of Ghana say success could improve food security and economic inequality. Good farmland is not equally <sup>43</sup>  around the world.

Studies show that the best farmland, which is across parts of North America and Europe, was covered by ice during the last ice age. Just as in Greenland today, the thick <sup>44</sup>  of ice has made the <sup>45</sup>  healthier.

"In Northern Europe, we think the reason we're better off than the rest of the world is that we are so much smarter than everyone else. In fact, we just have better soil," Rosing said.

I'm Dan Novak