

授業モデルの各単元への活用例

第5 学年版

| 学習過程 | 種子の発芽と成長 | 流れる水のはたらき | てこのしくみとはたらき | もののとけかた | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1 つかむ | ○発芽や成長に必要な条件を、生活経験や既知の知識の中から見付ける。 | ○川モデルに水を流したときに起こる変化と、それにかかわる要因を、演示実験の直接観察から見付ける。 | ○ここで物体を持ち上げる操作活動を行い、支点・力点・作用点の位置と、力の大きさの変化との定性的な特徴をつかむ。 | ○食塩やミョウバンが水に溶ける様子を観察し、たくさん溶かすための要因として、水の量と温度を挙げる。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 追究する | 定 性 的 な 追 究 → 定 量 的 な 追 究 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p>① 種子の発芽に必要な条件として水、空気、温度に着目し、調べたい条件以外の条件はそろえる必要があることを知り、追究する。</p> <p>② 植物の成長に必要な条件として光と肥料に着目し、調べたい条件以外の条件をそろえて追究する。</p> | <p>○ 流速と水量に着目し、流速を要因として調べるときには水量を変えない等の制御をして追究する。</p> <p>※「運ぶ」「積もらせる」については、水が流れる途中で土が削られて土の量が増えないように工夫する。</p> | <p>① 支点・力点・作用点を変えずに、おもりの重さだけを変え、つり合いの条件を見付ける。</p> <p>② 支点・作用点を変えずに力点の位置だけを変え、力の大きさの変化のきまりを見付ける。</p> <p>③ 支点を変えずに、おもりの重さと位置を変えて、つり合いのきまりを数量的に導き出す。</p> | <p>① 水の温度は変えず、水の量を増やすことによって、食塩やミョウバンが水に溶ける量がどのように変化するかを調べる。</p> <p>② 水の量は変えず、水の温度だけを上げて、食塩やミョウバンが水に溶ける量がどのように変化するかを調べる。</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 まとめる | ※事象の変化と、計画的に制御した要因との関係を表やグラフでまとめ、規則性や法則性を導き出す。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p>① 種子の発芽の条件</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><th>水</th><th>空気</th><th>温度</th><th>光</th><th>結果</th></tr> <tr><td>A</td><td>○</td><td>○</td><td>○</td><td>○</td></tr> <tr><td>B</td><td>×</td><td>○</td><td>○</td><td>×</td></tr> <tr><td>C</td><td>○</td><td>×</td><td>○</td><td>×</td></tr> <tr><td>D</td><td>○</td><td>○</td><td>×</td><td>×</td></tr> <tr><td>E</td><td>○</td><td>○</td><td>×</td><td>○</td></tr> </table> <p>② 成長の条件</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><th>水</th><th>肥料</th><th>光</th><th>結果</th></tr> <tr><td>A</td><td>○</td><td>○</td><td>◎</td></tr> <tr><td>B</td><td>○</td><td>×</td><td>○</td></tr> <tr><td>C</td><td>○</td><td>×</td><td>×</td></tr> </table> | 水 | 空気 | 温度 | 光 | 結果 | A | ○ | ○ | ○ | ○ | B | × | ○ | ○ | × | C | ○ | × | ○ | × | D | ○ | ○ | × | × | E | ○ | ○ | × | ○ | 水 | 肥料 | 光 | 結果 | A | ○ | ○ | ◎ | B | ○ | × | ○ | C | ○ | × | × | <p>流れる水のはたらきと原因</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><th>けずる</th><th>運ぶ</th><th>積もらせる</th></tr> <tr><td>速さ</td><td></td><td></td></tr> <tr><td>水量</td><td></td><td></td></tr> </table> <p>実際の川に見られる流れる水のはたらき</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><th>けずる</th><th>運ぶ</th><th>積もらせる</th></tr> <tr><td>上流</td><td></td><td></td></tr> <tr><td>中流</td><td></td><td></td></tr> <tr><td>下流</td><td></td><td></td></tr> </table> | けずる | 運ぶ | 積もらせる | 速さ | | | 水量 | | | けずる | 運ぶ | 積もらせる | 上流 | | | 中流 | | | 下流 | | | <p>② 力点の位置と力の大きさ</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><th>力点の位置</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th></tr> <tr><td>力の大きさ(g)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> <p>③ つり合いのきまり</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><th colspan="2">左</th><th colspan="2">右</th></tr> <tr><th>おもりの数</th><th>距離</th><th>おもりの数</th><th>距離</th></tr> <tr><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> </table> | 力点の位置 | 1 | 2 | 3 | 4 | 5 | 6 | 力の大きさ(g) | | | | | | | 左 | | 右 | | おもりの数 | 距離 | おもりの数 | 距離 | | | | | | | | | <p>① 水の量と溶ける量</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><th>水の量</th><th>食塩</th><th>ミョウバン</th></tr> <tr><td>50ml</td><td></td><td></td></tr> <tr><td>70ml</td><td></td><td></td></tr> </table> <p>② 水の温度と溶ける量 (表を基で作成)</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>(g)</p> <p>溶ける量</p> <p>温度(°C)</p> </div> <div style="text-align: center;"> <p>(g)</p> <p>溶ける量</p> <p>温度(°C)</p> </div> </div> | 水の量 | 食塩 | ミョウバン | 50ml | | | 70ml | | |
| 水 | 空気 | 温度 | 光 | 結果 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | ○ | ○ | ○ | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B | × | ○ | ○ | × | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | ○ | × | ○ | × | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | ○ | ○ | × | × | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| けずる | 運ぶ | 積もらせる | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 上流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 中流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 下流 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 力点の位置 | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 力の大きさ(g) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| おもりの数 | 距離 | おもりの数 | 距離 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 水の量 | 食塩 | ミョウバン | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50ml | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 70ml | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 高める 振り返る つなげる | ○水耕栽培や稲作を例に調べ、学習したことが実生活で役立てられていることを実感する。 | ○自然災害から「友達の家」を守る方法を考え、実際に試してみることで、実生活とのかかわりを実感する。 | ○上皿てんびんの使い方の習得や、てこを利用した身の回りの道具について調べることで、実生活とのかかわりを実感する。 | ○食塩とミョウバンの、形の整った大きな結晶を取り出す方法を考え、実際に取り出すことで、実生活とのかかわりを実感する。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |