

WIND ROSE DIAGRAM

PRESENTATION BY

PROF.(DR.) SANJAY KUMAR

PROFESSOR AND HOD

P.G. DEPARTMENT OF GEOGRAPHY

MAHARAJA COLLEGE, ARA



WIND ROSE DIAGRAM

- A wind rose diagram is a graphical representation that shows the frequency, duration, and speed of wind from different directions at a specific location. It looks like a star or a compass rose, with "spokes" radiating from a central point, where the length of each spoke indicates the wind blew from that direction. The spokes are often divided into color-coded segments to show different wind speed ranges, making it a useful tool for meteorology, aviation, architecture, and wind energy.

WIND ROSE DIAGRAM

- **How it works:**
- **Circular grid:** The diagram uses a polar coordinate system with a central point representing calm conditions.

Direction: The spokes radiate from the center to the outer edge, representing the direction of the wind.



WIND ROSE DIAGRA...



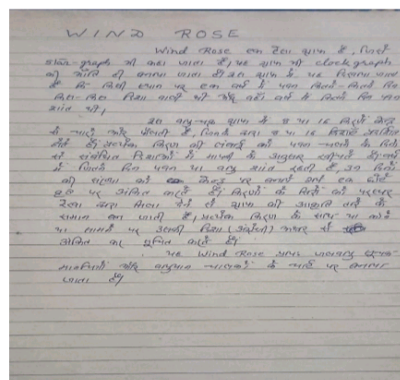
Circular grid: The diagram uses a polar coordinate system with a central point representing calm conditions.

- **Direction:** The spokes radiate outwards from the center, with each spoke representing a different wind direction (e.g., North, South, East, West).
- **Frequency:** The length of each spoke is proportional to the frequency of wind blowing from that direction.
- **Speed:** Color-coded bands along each spoke show different wind speed ranges, providing details on wind intensity.
- **Calm conditions:** The center of the diagram shows the percentage of time that conditions were calm.

WIND ROSE DIAGRAM

- **Applications:**
- **Aviation:** To determine the optimal orientation for runways, as they are typically aligned with the prevailing wind direction.
- **Architecture and Engineering:** To help plan for proper building ventilation, site layout, and to analyze wind loads.
- **Environmental science:** For air quality modeling and dispersion studies.
- **Wind energy:** To assess the best locations and orientation for wind turbines.
- **Agriculture:** To understand wind patterns for various applications.
- A wind rose is a graphical tool used by meteorologists to give a succinct view of how wind speed and direction are typically distributed.

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- Wind Rose diagram एक ऐसा ग्राफ है, जिसे स्टार-ग्राफ भी कहा जाता है।
- यह ग्राफ clock graph की तरह बनाया जाता है।
- इसमें यह दिखाने का प्रयास होता है कि किसी स्थान पर एक वर्ष में पवन कितने दिनों तक किस-किस दिशावाली थी और वहाँ पवन कितने दिनों तक शांत रही।
- वायु-चक्र ग्राफ में 8 रेखाएँ केन्द्र से बाहर की खींचते हैं।

WIND ROSE DIAGRAM

- प्रत्येक किरण की लंबाई को पवन चलने के दिनों से संबंधित दिशाओं में मापनी के अनुसार खींचते हैं।
- वर्ष में जितने दिन पवन शांत रहती है, उन शांत दिनों को उसकी संख्या को वृत्त के अंदर लिखकर प्रदर्शित करते हैं।
- किरणों के सिरों को आपस में स्केल और पेंसिल की सहायता से परस्पर मिला देते हैं।
- प्रत्येक किरण के सिरे पर उसकी दिशा को लिख देते हैं।

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- Q. Construct a Wind Rose diagram for New Delhi to show the direction of wind coming in different days from different directions. The

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different days from different directions. The data is given below:

Direction of wind	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm Days
No. of Days	33	22	24	29	17	16	102	101	21

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- Method of construction:
 1. First select the scale for no. of days to represent in cm or inch.
 2. 1cm or 1 inch = no. of days.
 3. Here we have selected 1"=20 days.
 4. Now draw a small of near about 1" and write 21 days within the circle. It represents the no. calm days.
 5. Now draw four cardinal /lines to represents east, west , north and south.
 6. After drawing of four cardinal points / lines, now draw four lines between these four lines.
 7. At 45⁰angle , draw four sub cardinal points/ lines .

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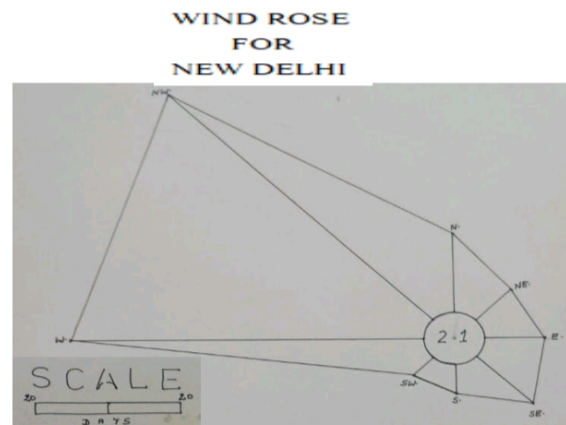
- Now you have drawn 8 lines representing east, south- east, south, south-west, west, north-west and north.
- According to the question or data ,draw accurate length of the wind coming from the different directions through the scale you have selected.
- e.g. if you have selected 1"=20 days , than point the mark just something more than 1" for NE

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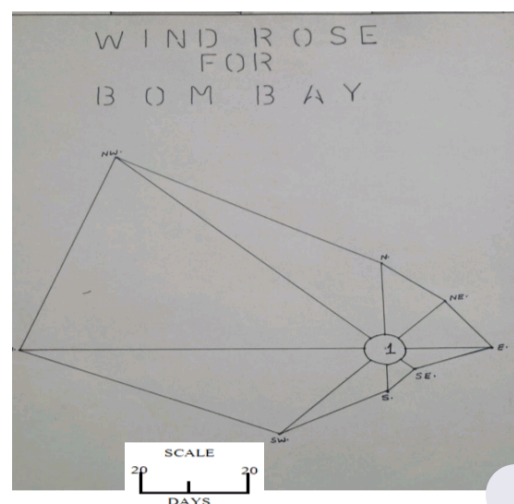


the mark just something more than 1" for NE and so on.

WIND ROSE DIAGRAM



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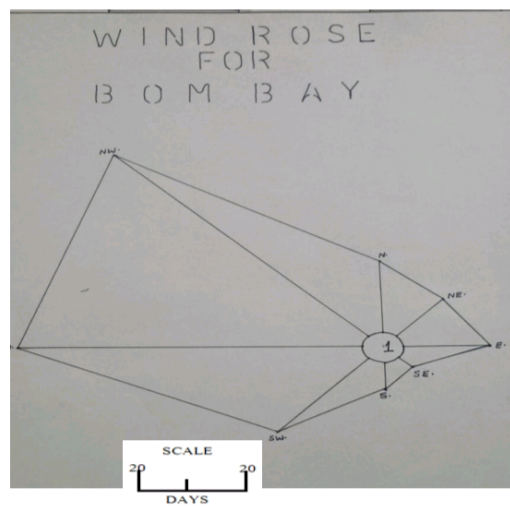
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WIND ROSE DIAGRAM



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- THE END

- THANK YOU

- HAVE A NICE DAY